DOCUMENT RESUME

ED 319 701 SP 032 301

AUTHOR	Clark, Jane E., Ed.
TITLE	Abstracts of Research Papers 1990. Presented at the Annual Convention Consortium Meetings of the American Alliance for Health, Physical Education, Recreation and Dance (New Orleans, Louisiana, March 28-31, 1990).
INSTITUTION	American Alliance for Health, Physical Education, Recreation and Dance, Reston, VA.
REPORT NO	ISBN-0-88314-479-4
PUB DATE	90
NOTE	355p.
AVAILABLE FROM	AAHPERD Publications, P.O. Box 704, Waldorf, MD 20604.
PUB TYPE	Reports - Research/Technical (143) -- Collected Works - Conference Proceedings (021)
EDRS PRICE	MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS	Abstracts; Adapted Physical Education; Athletics; Biomechanics; *Dance; Drug Abuse; Exercise; Exercise Physiology; *Health; Perceptual Motor Learning; *Physical Education; Physical Fitness; Psychomotor Skills; *Recreation; Sport Psychology; Teaching Methods

ABSTRACT

The abstracts in this volume cover the following topics: (1) administration, (2) biomechanics, (3) body composition, (4) curriculum, (5) dance, (6) health, (7) history, (8) leisure, (9) measurement, (10) motor development, (11) motor learning and control, (12) pedagogy, (13) philosophy, (14) physical fitness, (15) physiology, (16) psychology, (17) sociology, and (18) special populations. The name and address of the presenter is included with each abstract. (JD)

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ABSTRACTS

Research Papers
1990
AAHPERD Convention

SP 032 301

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ABSTRACTS

of Research Papers 1990

Jane E. Clark, Editor
University of Maryland, College Park

Presented at the New Orleans, Louisiana Convention of
American Alliance for Health,
Physical Education, Recreation and Dance
in the Research Consortium Meetings

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American Alliance for
Health, Physical Education,
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1900 Association Drive
Reston, Virginia 22091
ISBN-88314-479-4

Purposes of the American Alliance For Health, Physical Education, Recreation and Dance

The American Alliance is an educational organization, structured for the purposes of supporting, encouraging, and providing assistance to member groups and their personnel throughout the nation as they seek to initiate, develop, and conduct programs in health, leisure, and movement-related activities for the enrichment of human life.

Alliance objectives include:

1. Professional growth and development – to support, encourage, and provide guidance in the development and conduct of programs in health, leisure, and movement-related activities which are based on the needs, interests, and inherent capacities of the individual in today's society.
2. Communication – to facilitate public and professional understanding and appreciation of the importance and value of health, leisure, and movement-related activities as they contribute toward human well-being.
3. Research – to encourage and facilitate research which will enrich the depth and scope of health, leisure, and movement-related activities; and to disseminate the findings to the profession and other interested and concerned publics.
4. Standards and guidelines – to further the continuous development and evaluation of standards within the profession for personnel and programs in health, leisure, and movement-related activities.
5. Public affairs – to coordinate and administer a planned program of professional, public, and governmental relations that will improve education in areas of health, leisure, and movement-related activities.
6. To conduct such other activities as shall be approved by the Board of Governors and the Alliance Assembly, provided that the Alliance shall not engage in any activity which would be inconsistent with the status of an educational and charitable organization as defined in Section 501(c) (3) of the Internal Revenue Code of 1954 or any successor provision thereto, and none of the said purposes shall at any time be deemed or construed to be purposes other than the public benefit purposes and objectives consistent with such educational and charitable status.

Bylaws, Article III

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PREFACE

Abstracts of papers accepted for presentation in the Research Consortium session of the 1990 AAHPERD Convention in New Orleans are published in this volume. Close to 600 abstracts were submitted for consideration in this year's program. Each abstract was evaluated by three reviewers with expertise in the area represented in the abstract. Reviewers were recommended by the various associations of AAHPERD, the *Research Quarterly for Exercise and Sport* section editors, and the NASPE Academy chairs. Over 150 individuals were involved in the review process. The names, institutional affiliations and the areas of their expertise are listed on the following pages.

The Research Consortium program is comprised of free papers, posters, symposia and invited lectures. The program schedule (including time and place) is provided following the list of reviewers. Abstracts of presentations made in the symposia are presented in the next section, followed by the abstracts for free papers and posters. The latter section is organized alphabetically by the last name of the paper's first author.

Thanks are extended to all those who submitted papers and by their very efforts support the research mission of AAHPERD. Thanks also are extended to the reviewers who gave so selflessly of their time and expertise and to the presiders for their assistance in the final program. A special thanks to Barbara White who single-handedly kept me organized and worked tirelessly throughout the entire review, selection and publication process. And finally, my gratitude is extended to the Department of Kinesiology for their continued support of our professional responsibilities.

The Research Consortium provides an important forum for the dissemination of research in the fields of health, physical education, recreation and dance. Through the continued efforts of all those members of the Alliance who do research and willing give of their time and expertise, the Research Consortium exists and hopefully grows.

Jane E. Clark
President-Elect, Research Consortium
Department of Kinesiology
University of Maryland
College Park, MD 20742

REVIEWERS

The following individuals served as reviewers for the abstracts submitted for the 1990 AAHPERD Convention:

ADMINISTRATION

John Massengale	University of Nevada
Larry Chalip	University of Maryland
Brenda Pitts	University of Louisville

BIOMECHANICS

Mark Grabiner	Cleveland Clinic Foundation
Jody Jensen	Indiana University-Bloomington
Phil Martin	Arizona State University
Carole Zebas	University of Kansas
Jackie Hudson	University of North Carolina-Greensboro
Graham Caldwell	University of Maryland-College Park

BODY COMPOSITION

Mary Slaughter	125 Freer Gymnasium-Urbana
Phillip B. Sparling	Georgia Institute of Technology
Ronald Bulbulian	University of Kentucky-Lexington
Wayne Sinning	Kent State University
Scott Going	University of Arizona

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Linda Lander	Bowling Green State University

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Gayle Kassing	Normal, Illinois
Billie Lepczyk	Virginia Tech - Blackburg
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Mark J. Kittleson	Youngstown State University
Molly Laflin	Bowling Green University
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David Mason	Northern Illinois University
Gary Nelson	Center for Disease Control-Atlanta
Robert Scott Olds	Kent State University
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Laurna Rubinson	University of Illinois-Champaign
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Pat Long	University of Colorado
Carlton Yoshioka	Arizona State University
Steve Anderson	University of North Carolina-Greensboro

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Margaret J. Safrit	University of Wisconsin-Madison
Bethany Shifflett	San Jose State University
Terence Wood	Oregon State University-Corvallis

MOTOR DEVELOPMENT

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Kathie Haywood	University of Missouri-St. Louis
Charlotte Humphries	University of North Carolina-Grand Forks
Jill Whitall	University of Wisconsin-Madison
Jere Gallagher	University of Pittsburgh

MOTOR LEARNING AND CONTROL

Daniel Corcos	Rush Medical College-Chicago
Barbara Hart	Univ. of Wisconsin-Milwaukee
James H. Cauraugh	University of Florida
Tonya Toole	Florida State University
Sinah Goode	Texas Woman's University
Susann Doody	University of Northern Iowa
Debra Rose	Oregon State University-Corvallis

PEDAGOGY

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Patt Dodds	University of Massachusetts
Michael Goldberger	Temple University
Amelia Lee	Louisiana State University
Judith Rink	University of South Carolina
Stephen Silverman	University of Texas-Austin
Beverly Yerg	Florida State University
Rosalyn Edwards	University of Houston
Karen Greenockle	University of Tennessee-Martin
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Scott Kretchmer	Pennsylvania State University

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Linda Zwiren	Hofstra University
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Paul Vaccaro	University of Maryland-College Park
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Blanche Evans	Indiana State University
Allan Goldfarb	University of North Carolina-Greensboro
Priscilla M. Clarkson	University of Massachusetts
Gary Sforzo	Ithaca College

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Diane Wiese	University of Minnesota
Linda Petlichkoff	Boise State University
Thelma Horn	Miami University
Robert Brustad	Portland State University
Penny McCullagh	University of Colorado
Martha Ewing	Michigan State University
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In addition to reviewers from area specializations, the following individuals served as reviewers for the SYMPOSIA:

James Eddy	University of Alabama
Karla Henderson	University of North Carolina-Chapel Hill
Jack Nelson	Baton Rouge, LA
Emily Wughalter	New York University
Daryl Crase	Memphis State University
Billie Lepczyk	Virginia Tech-Blacksburg

RESEARCH CONSORTIUM PROGRAM

THURSDAY, MARCH 29, 1990

RESEARCH CONSORTIUM: McCLOY LECTURE

7:30 - 9:00 a.m. -- New Orleans Hilton, Melrose Room
"Concentrating Effectively for Performance: Studies on the Arousal/Attentional set of Athletes" -- Daniel Landers, Arizona State University, Temple

RESEARCH CONSORTIUM FREE PAPERS: DANCE

9:00 a.m. - 10:15 a.m. -- Convention Center, Room 13
PRESIDER: D. Howell, University of California, Irvine

9:00-9:15 a.m. -- "Dance Performance Style: An Analytical Approach to the Elements of Artistic Process" -- Betsey Goodling Gibbons, Washburn University, Topeka

9:15-9:30 a.m. -- "In the Dance Classroom: Perceptions of Dance Competence" -- Janice M. Bibik, University of Delaware, Newark

9:30-9:45 a.m. -- "The Development of an Instrument for Evaluating Social Dance Performance" -- Marilyn A. Looney and Barbara Heimerdinger, Northern Illinois University, DeKalb

9:45-10:00 a.m. -- "The Relationship Between Physical Self-Efficacy and Competitive State Anxiety in Beginning Modern Dance Students" -- Elizabeth Limons, Pennsylvania State University, University Park

10:00-10:15 a.m.-- "The Required Dance Component in the University Physical Education Program: Student Perceptions and Attitudes" -- A. Brian Nielsen, Marnie Rutledge and Dorothy L. Harris, University of Alberta, Edmonton, Canada.

RESEARCH CONSORTIUM FREE PAPERS: MOTOR LEARNING AND CONTROL

9:00 a.m. - 10:15 a.m. -- Convention Center, Room 15
PRESIDER: S. Goode, Texas Woman's University, Denton, Texas

9:00 - 9:15 a.m. -- "The Relative Effectiveness of three Forms of Visual Knowledge of Results on Maximal Strength Output in an Isokinetic

Extension/Flexion of the Knee" -- Susan Hobbel and Debra J. Rose, Oregon State University, Corvallis

9:15 - 9:30 a.m. -- "The Use of Kinematic Information for Improving a Complex Motor Skill" -- Carol Wood, Jere Gallagher and Marilyn Ross, University of Pittsburgh, Pennsylvania

9:30 - 9:45 a.m. -- "Effect of Three Conditions of Summary Knowledge of Results upon Retention of Accuracy in a Force Production Task" -- Clayton D. Gable and Charles H. Shea, Texas A&M University, College Station

9:45 - 10:00 a.m. -- "Context Dependent Learning in Motor Skills" -- Charles H. Shea and David Wright, Texas A&M University, College Station

10:00 - 10:15 a.m. -- "An Experimentally-Determined Space for the Study of Multilimb Coordination" -- Charles B. Walter and Daniel M. Corcos, University of Illinois, Chicago and Stephan P. Swinnen, Catholic University, Leuven, Belgium.

RESEARCH CONSORTIUM POSTER SESSION: PEDAGOGY

9:00 - 10:15 a.m. -- Convention Center, Rooms 22 and 24
PRESIDER: E. Brown, University of Maryland, College Park

1. "An Analysis of Lesson Context and Learner Involvement Patterns During High School Activity Units: A Case Study" -- Linda Thompson and Larry Beauchamp, University of Alberta, Edmonton, Canada
2. "The Effects of Playing and Teaching Experience on Ability to Perform a Diagnostic Task" -- Gail L. DiCicco, University of Pittsburgh, Pennsylvania
3. "Descriptive Analysis of Student Alt-PE and Teacher Behaviors in College Aerobic Dance Classes" -- Alan C. Lacy, Texas Christian University, Fort Worth, and David B. Claxton, Baylor University, Waco, Texas
4. "Case Studies of Physical Education Teachers From a Research-Based Preparation Program" -- Amelia R. Mays, Columbia College, South Carolina
5. "A Comparative Analysis of the Pedagogical Cognitions of Expert and Novice Basketball Coaches During Planning and Practice Sessions" -- D. Floyd Jones, West Virginia University, Morgantown
6. "A qualitative Study of Preservice Teachers' Observations in Unguided

Field Experiences in Physical Education" -- Steven F. Pugh, Wichita State University, Kansas

7. "Effective Cooperating Teacher Qualities as Perceived by Experienced Student Teachers" -- Cathy M. Buell, San Jose State University, California
8. "Task Structures in Elementary Physical Education Classes" -- Diana L. Jones, Western Illinois University, Macomb
9. "Effects of Instruction on the Visual Retention of Performance and Observational Focus of Physical Education Majors" -- Sandy K. Gangstead, Oklahoma State University, Stillwater
10. "The TCQ-P.E.--An Adaptation of the Teacher Concerns Questionnaire Instrument to a Physical Education Setting" -- Ron E. McBride, Texas A & M University, College Station
11. "The Effects of Visual Training on Learning a Motor Skill" -- Elizabeth Y. Brown, University of Maryland, College Park
12. "Comparison of Female Teaching and Coaching Behaviors in Junior High Schools through Systematic Observation" -- Faye D. Avard, Grambling State University, Monroe, Louisiana and Bill Larson, University of Southern Mississippi, Hattiesburg
13. "Effects of Peer Observations and Feedback on Social Interactions During Game Play in Junior High School Physical Education Classes" -- Robert A. Hoff and Thomas L. McKenzie, San Diego State University, California
14. "Feedback to Individual Students in Physical Education: An Analysis of Sex and Initial Skill Level" -- Stephen Silverman and Lea Ann Tyson, The University of Texas, Austin and John Krampitz, Concordia Lutheran College, Austin, Texas
15. "The First Step in a Collaborative Effort Between University and Classroom Teachers During a Preservice Elementary Physical Education Program" -- Karen A. Kurz-McPherson, West Virginia University, Morgantown and F. Nell Faucette, San Diego State University, California
16. "Contextual Resolution as a Function of Teacher Role Identity Strength" -- Terry E. Worthy, Amelia M. Lee, Jo A. Carter and Melinda A. Solmon, Louisiana State University, Baton Rouge
17. "The Effect of Student Teaching on Instructional Style Preference of Preservice Education Majors" -- Frank Pettigrew, Kent State University, Ohio
18. "Pre-service Classroom Teachers' Concerns Regarding Early Field Experience in Elementary Physical Education" -- Debbie Howell, University of Central Arkansas, Conway and Madge Ashy, Southeastern Louisiana University, Hammond
19. "A Descriptive Study on the Use of Feedback by an Experienced Ballet Instructor" -- Diane Walker, Karen Mullen and Karyn Nelson, University of Idaho, Moscow
20. "Perceptions of Athleticism: Should Physical Education Teachers Promote Self-Referenced Evaluation? -- Genger A. Fahleson, Boise

State University, Idaho

21. "Sequential Planning Among Experienced Teachers: Teaching is not Clinical Problem Solving" -- David C. Griffey, University of Alabama, Tuscaloosa and Lynn D. Housner, New Mexico State University, Las Cruces
22. "Observational Abilities of Kinesiology Students and Elementary Education Students in the Assessment of Hopping: Practical Implications" -- Mary A. Painter, California State University, Northridge
23. "Traditional and Non-Traditional Preservice Teachers' Interpretation of an Instructional Situation in Physical Education" -- Grace Goc Karp, Washington State University, Pullman; K. Nelson and D. Morgan, University of Idaho, Moscow
24. "The Effects of Differential Proximity and Active Supervision on the On-Task Behavior of Junior High Physical Education Students" -- Mary Jo Sariscsany, Kent State University, Ohio
25. "The Effect of a Systematic Supervision Model on Selected Teacher Behaviors of Preinterns in Physical Education" -- Lynda E. Randall, Bassam A. Mismar and Charmaine DeFrancesco, The Florida State University, Tallahassee and Karren Y. Newman, Seminole County School District, Florida
26. "Effects of Training in Skill Analysis on Generalization Across Age Levels" -- Pamela Jones Morton, West Virginia University, Morgantown
27. "Motor Skill Diagnosis: Diagnostic Processes of Expert and Novice Coaches" -- Victor E. D. Pinheiro, The University of Akron, Ohio
28. "Thought Processes of Adapted Physical Education Teachers" -- Melinda A. Solmon and Amelia M. Lee, Louisiana State University, Baton Rouge
29. "The Impact of Teacher Effectiveness Training on the Motor Engagement of Preschool Children in Physical Education" -- Tommy Foster, Averett College, Danville, Virginia and Craig A. Buschner, California State University, Chico
30. "Sports Participation Patterns of Prospective Physical Education Professionals" -- Sarah Doolittle, Judith H. Placek, Patt Dodds, Tom Ratliffe, Penny Portman and Kathy Pinkham, University of Massachusetts, Amherst

RESEARCH CONSORTIUM SYMPOSIUM: SPORT PSYCHOLOGY AND ATHLETIC INJURY

10:45 - 12:00 NOON -- Convention Center, Room 15
ORGANIZER: Diane M. Wiese, University of Minnesota

SPEAKERS :

"Psychosocial Factors Related to the Occurrence of Athletic Injuries" -- Diane M. Wiese, University of Minnesota, Minneapolis

"Cognitive and Emotional Responses of Athletes to Injury" -- Aynsley M. Smith, Mayo Clinic Sports Medicine Program, Rochester, Minnesota

"Facilitation of Physical and Psychological Recovery from Athletic Injury" -- Eric E. LaMott, Boise State University

RESEARCH CONSORTIUM FREE PAPERS: MOTOR DEVELOPMENT

10:45 am. - 12:00 noon -- Convention Center, Room 13
PRESIDER: J. Whitall, University of Wisconsin, Madison

10:45 - 11:00 a.m. --	"A Longitudinal Study of Treadmill Stepping in Infants with Down Syndrome" -- Dale A. Ulrich, Beverly D. Ulrich, and Douglas H. Collier, Indiana University, Bloomington
11:00 - 11:15 a.m. --	"Stability of Interlimb Coordination in the First Six Months of Walking" -- Martin E. Block, University of Maryland, College Park, Jill Whitall, University of Wisconsin, Madison, Carol Wilson and Jane E. Clark, University of Maryland, College Park
11:15 - 11:30 a.m. --	"The Effects of Training Mode on Children's Coincidence Timing Ability" -- Virginia G. Overdorf, William C. Paterson College, Wayne, New Jersey and Beth Barnett, Manhattan College, Riverdale, New York
11:30 - 11:45 a.m. --	"Developmental Sequences for Catching a Small Ball: A Prelongitudinal Screening" -- H. Scott Strohmeyer, Kathleen Williams, and Diana Schaub-George, University of North Carolina, Greensboro
11:45 - 12:00 noon --	"The Climbing Patterns of Four- and Six-Year-Old Children on Ladders with Differing Rung Spacings" -- Mary F. Kirk, Northern Kentucky University, Highland Heights

RESEARCH CONSORTIUM POSTER SESSION: HEALTH

10:45 - NOON -- Convention Center, Rooms 22 and 24
PRESIDER: J. Eddy, University of Alabama, Tuscaloosa

1. "Quick and Effective Stress Screening" -- Cynthia Chandler, University of North Texas, Denton and Cheryl Kolander, University of Louisville, Kentucky
2. "Aids Knowledge and Attitudes: American Indians" -- Shirley Morgan, and Josephine Gaines, East Tennessee State University, Johnson City
3. "The Collaborative Teaching-Learning Mode: The Effectiveness of Health Education Professors in Utilizing the Components of Adult Learning Principles" -- Kim D. Freeland, Eastern New Mexico University, Portales, and Joan E. Franklin, Chapman College, Clovis, New Mexico
4. "Tobacco Prevention in North Carolina Public Schools" -- Dennis W. Smith, University of North Carolina, Greensboro, Allan B. Steckler, University of North Carolina, Chapel Hill, and Keith A. Howell, University of North Carolina, Greensboro
5. "The Effect of Including Parents in an Exercise and Nutrition Program for Children" -- Chris A. Hopper, Mary Gruber and Kathy Munoz, Humboldt State University, Arcata, California and Rob Herb, University of Florida, Gainesboro
6. "Factors that Influence Knowledge about Aids Among University Students" -- Dan R. Denson, Robert A. Voight and Michael J. Soileau, McNeese State University, Lake Charles, Louisiana
7. "Dietary and Activity Patterns of Young Adult Male Smokers" -- Bonita L. Marks, University of Massachusetts, Worcester; Kenneth Metz, Kenneth A. Perkins, Leonard H. Epstein, Robert J. Robertson, Frederick Goss and Carolyn Mozlack, University of Pittsburgh, Pennsylvania
8. "Impact of Levels of Taxation and Smoking Restrictions on Smoking Behavior" -- James M. Eddy, Catherine Teare Ketter and R. Carl Westerfield, The University of Alabama, Tuscaloosa and James J. McVay, Department of Health, Montgomery, Alabama
9. "A Comparison of the Functional Level of Physical Therapy Patients Discharged from a Skilled Nursing Care Facility with their Level of Independence at Home" -- John S. Anderson, East Tennessee State University, Johnson City and Marie Jackson, Consultant
10. "The Effect of Exercise on Selected Aspects of Active Adult, Female Sexuality" -- C. Eric Gronbech and Mary Grace Bator, Chicago State University, Illinois
11. "Health Screening in Missouri Schools" -- Alex Waigandt, University of Missouri, Columbia
12. "Health Screenings in Urban vs. Rural Schools in Central Missouri" -- James Brown and Alex Waigandt, University of Missouri, Columbia and Deborah Miller, College of Charleston, South Carolina

13. "Perceived Physical Attractiveness and Substance Use Among Adolescents" -- Randy M. Page and Dwaine J. Marten, University of Idaho, Moscow
14. "Comparison of Self-Reported Health Education Competencies: A Preliminary Study of Chinese and American School Teachers" -- W. William Chen, University of Florida, Gainesville
15. "An International Public Health Issue: Domestic Violence Against Women. Perceptions and Contrasts of International Students on the Causes of Violence in their Home Countries" -- Elisabeth Reichert, University of Tennessee Women's Center, Knoxville, Tennessee
16. "An Analysis of Introductory Health Education Textbook Multiple-Choice Test Item Files" -- Larry K. Olsen, Richard E. McGarry and MinQi Wang, Pennsylvania State University, University Park
17. "The Relationship of Eating Disorders to Drug and Alcohol Addiction: The Family tie that Binds" -- Terri Mulkins Manning, Oklahoma State University, Stillwater
18. "Blood Pressure and Cholesterol Results from a National Screening Study" -- Allen Jackson, Glen Davis and Jean Andresen, University of North Texas, Denton
19. "Comparison of Hispanic and White Adolescents Regarding Suicidal Thoughts, Behaviors, and the Use of Alcohol" -- Steven R. Furney, Southwest Texas State University, San Marcos
20. "Impact of a 21 Year Drinking Age Law on University Students' Alcohol/Drug Use. 1986-1989" -- Jerry F. Lotterhos and Don Holbert, East Carolina University, Greenville
21. "Denial of Patterns of Alcohol Abuse Among Select University Students" -- E. Laurette Taylor, University of Oklahoma, Norman; Paul D. Sarvela and Judy C. Drolet, Southern Illinois University, Carbondale
22. "Measuring the Relationship Between Students' Attitudes Toward Alcohol and their Corresponding Drinking Behaviors" -- Elizabeth W. Edmundson, The University of Texas, Austin and Patrick R. Clifford, Brown University, Providence, Rhode Island
23. "Drinker's Interest in Minimal Contact Approaches to Reduce Alcohol Use" -- Chudley E. Werch, University of North Florida, Jacksonville and Carolyn Kersten, University of Arkansas, Fayetteville
24. "Personal Incentives and Health: Differences According to Gender and Level of Involvement in Health-Related Behaviors" -- Linda J. Stonecipher and Marlene K. Tappe, Purdue University, West Lafayette, Indiana
25. "Personal Investment in Weight Management: Gender Differences Among Adolescents" -- Marianne Frauenknecht, Marlene K. Tappe and David R. Black, Purdue University, West Lafayette, Indiana
26. "Technical Writing in Health Journals: An Analysis of Stylistic Features in Health Journals" -- Beverly S. Mahoney, Pennsylvania State University, University Park

RESEARCH CONSORTIUM: INVITED TUTORIAL LECTURE

2:00 - 3:15 p.m. -- Convention Center, Room 15
PRESIDER: Diane Gill, University of North Carolina at Greensboro

"Research on Self-efficacy in Sport and Physical Activity" --
Deborah Feltz, Michigan State University, East Lansing

RESEARCH CONSORTIUM FREE PAPERS: PEDAGOGY

2:00 - 3:15 p.m. -- Convention Center, Room 13
PRESIDER: S. Silverman, University of Texas, Austin

2:00 - 2:15 p.m. --	"What Prospective Teachers Believe about the Technical Skills of Teaching" -- Judith Placek, Sarah Doolittle, Patt Dodds, and Tom Ratliffe, University of Massachusetts, Amherst
2:15 - 2:30 p.m. --	"From Best to Bust: An Ethnographic Study of a First Year Secondary Physical Education Teacher" -- Nell Faucette, San Diego State University, California
2:30 - 2:45 p.m. --	"The Relation of Content Knowledge to Instructional Performance in Preservice Teachers" -- Susan Lynn, Florida State University, Tallahassee, Judith Rink and Karen French, University of South Carolina, Columbia
2:45 - 3:00 p.m. --	"The Effect of an Intervention on Preintern Knowledge and Attitude Toward Planning in Physical Education" -- Bassam A. Mismar and Lynda E. Randall, Florida State University, Tallahassee
3:00 - 3:15 p.m. --	"Going Through Teacher Education: A Future Physical Educator's Response to Early Training Experiences for Teaching" -- Thomas B. Steen, University of North Dakota, Grand Forks

RESEARCH CONSORTIUM POSTER SESSION: EXERCISE PHYSIOLOGY

2:00 - 3:15 p.m. -- Convention Center, Rooms 22 and 24
PRESIDER: G. Sforzo, Ithaca College, New York

1. "Effects of Water Exercise on Body Composition In Overweight Females" -- Kathryn D. Campbell, Terri Elder, and Karma G. Tidemann, Wichita State University, Kansas; John Hart, MD and Judy Fowler, University of Kansas, School of Medicine, Wichita; Nancy Stubbs and Von Slingerland, Wichita State University, Kansas
2. "NIR is not Valid for Estimating Body Composition in College Football Players" -- Richard G. Israel, Joseph A. Houmard, Michael R. McCammon, Kevin F. O'Brien, Jay Omer and Brenda S. Zamora, East Carolina University, Greenville, North Carolina
3. "The Utility of Bioelectrical Impedance Analysis (BIA) Across Large Fluctuations in Body Weight" -- William Torrance, Joseph E. Donnelly, and John Jakicic, Kearney State College, Nebraska
4. "Body Composition and Plasma Lipoprotein Profiles of Male and Female Swimming and Track Athletes" -- Deborah A. Ferrington and Carole M. Schneider, University of Kansas, Lawrence; William F. Klish and William Insull, Baylor College of Medicine, Houston, Texas
5. "Wingate Testing: Reliability and Learning Effect" -- Paul A. Schumann, Patricia A. Frye, and Gary A. Sforzo, Ithaca College, New York
6. "Whole Body Equivalent Resistance as a Predictor of Fat Free Volume" -- Laura Adams, Charles R.C. Marks, Michele Gallo, Kimberly Bolen and Alma George, Oakland University, Rochester, Michigan
7. "Validation of Hydrostatic Weighing Without Head Submersion on Female, Collegiate Age, Athletes" -- Thomas M. Adams, II, David J. Burgess, and Donald Layne, Arkansas State University, State University; Gregory K. Kandt, Fort Hays State University, Hays, Kansas
8. "The Accuracy of Coaches' Estimates of Minimal Wrestling Weight" -- Glen O. Johnson, Terry J. Housh and Dona J. Housh, University of Nebraska, Lincoln
9. "Predicting Postpartum Fatness from Early Pregnancy Skinfold Measurements" - Marianne S. Zeanah, University of Montevallo, Alabama, and Philip A. Bishop, University of Alabama, Tuscaloosa
10. "The Subcomponents of the Fat-Free Body to Height Relationships Between Swimmers and Non-Swimmer Children" -- Mary H. Slaughter, C. B. Christ, R. A. Boileau, and R. J. Stillman, University of Illinois, Urbana-Champaign and T. G. Lohman, University of Arizona, Tucson
11. "The Effects of Two Carbohydrate Diets, Consumed during Swim Training, on the Lactate Profile" -- Karl F. Rinehardt, Kansas State University, Manhattan; Robert L. Bartels, Ohio State University, Columbus and Nicole D. Rinehardt
12. "The Effect of Interval-Type Exercise on Excess Post-Exercise Oxygen Consumption (EPOC) in Obese and Normal-Weight Women" -- Leonard A. Kaminsky and Christine A. Melton, Ball State University, Muncie, Indiana

13. "Modification of the Rockport Walk Test to Predict Maximal Oxygen Consumption with Morbidly Obese Subjects" -- Joseph E. Donnelly, John Jakicic, Mickey Roscoe and Karen Pedersen, Kearney State College, Nebraska
14. "The Cardiovascular Response to Pre-Exercise Caffeine Ingestion in High Compared to Low Caffeine Users" -- James J. Sullivan, Ronald G. Knowlton, and Dale B. Brown, Southern Illinois University, Carbondale
15. "Effects of Jet Lag on Dynamic Strength, and Anaerobic Power and Capacity" -- David W. Hill and Jimmy C. Smith, University of North Texas, Denton
16. "Physiologic and Biochemical Characteristics of Female Collegiate Basketball Players Compared to Nonathletes" -- Stephen F. Crouse and Dennis J. Jacobsen, Texas A&M University, College Station
17. "Effects of Different Frequencies of Aerobic Dance on Oxygen Uptake, Body Composition, and Self-Concept" -- Patricia Thomas Cox, The Cooper Clinic, Dallas, Texas and Robert Boling, Mississippi State University, Mississippi State
18. "The Left Ventricular Cavity Dimensional Response to Upright Weight Lifting" -- Stanley P. Brown, University of Mississippi, Mississippi State; Walter R. Thompson, Kamlesh Nayak, Jean Goff, Larry Wood and Mark Bean, University of Southern Mississippi, Hattiesburg
19. "Effects of Chronic Training on Cardiac Dimensions of Young Swimmers" - Wendel H. Gatch, University of Southwestern Louisiana, Lafayette and Daniel L. Doucet, M.S., Oschner Medical Center of Baton Rouge, Louisiana
20. "Comparison of Selected Training Responses to Water Aerobics and Low-Impact Aerobics" -- Terri-Ann Spitzer and Werner W.K. Hoeger, Boise State University, Idaho; James R. Moore, Idaho Sports Medicine Institute, Boise, Idaho and David R. Hopkins, Indiana State University, Terre Haute
21. "Oxygen Consumption Following Short Duration Exercise" -- Marigold A. Edwards, Theodore J. Angelopoulos, Christopher J. Stewart and Pahnos Tzelatis, University of Pittsburgh, Pennsylvania
22. "Interrelationships Among Body Height, Body Mass, and Running Economy in Well-Trained Male Runners" - Don W. Morgan, University of North Carolina, Greensboro, and Gary S. Krahenbuhl, Arizona State University, Tempe
23. "Effect of Weight Lifting and Treadmill Exercise on Plasma Volume Changes" -- Mitchell A. Collins, Kennesaw State College, Marietta, Georgia; Max A. Burleson, Jr., University of North Carolina, Greensboro; Travis Triplett, Tim Smith, and Kevin Allran, Appalachian State University, Boone, North Carolina
24. "Gender and Training Effects on Growth Hormone and Prolactin in Response to Treadmill Running" -- Robert R. Kraemer, Kansas State University, Manhattan; S. Blair, West Texas State University, Canyon and V. Daniel Castracane, Texas Tech Health Sciences Center,

FRIDAY, MARCH 30, 1990

RESEARCH CONSORTIUM/AMERICAN ACADEMY OF PHYSICAL EDUCATION: INVITED LECTURE

10:45 - 12:00 Noon -- Convention Center, Room 15
PRESIDER: Charles Corbin, Arizona State University, Temple

"Exercise Epidemiology: Contributions and Prospects in Health and Physical Education" -- Steven N. Blair, Institute for Aerobics Research, Dallas, Texas

RESEARCH CONSORTIUM FREE PAPERS: HISTORY OF SPORT

10:45 a.m. - 12:00 noon -- Convention Center, Room 13
PRESIDER: D. Zang, University of Maryland, College Park

10:45 - 11:00 a.m. --	"Color, Courage, and Community: Leisure and Sporting Pursuits of Black Residents of the Greater San Francisco Bay Area 1920-1950" -- Gwendolyn Captain, University of California, Berkeley
11:00 - 11:15 a.m. --	"Afro-American Female Olympians as Role Models, Mentors and Leaders" -- Joan S. Hult, University of Maryland, College Park
11:15 - 11:30 a.m. --	"Recreation Softball Leagues and the Development of Community Among Japanese-American Women in Los Angeles, 1930-1950" -- Alison M. Wrynn, University of California, Berkeley
11:30 - 11:45 a.m. --	"The Anomaly of the Summer School and the Professionalization of Physical Education, 1920-1930" -- Paula R. Lupcho, California State University, Sacramento
11:45 - 12:00 noon --	"A Fascination with Form: The Scientific and Cultural Context of Anthropometry and Body Shape, 1865-1919" -- Roberta J. Park, University of California, Berkeley

RESEARCH CONSORTIUM POSTER SESSION: CURRICULUM, ADMINISTRATION, AND LEISURE

10:45 - 12:00 Noon -- Convention Center, Rooms 22 and 24
PRESIDER: B. Shifflett, San Jose State University, California

1. "Inservice Needs Assessment for Physical Education in the Overseas International School" -- Patricia A. Mattausch-Johnson and Grace Goc Karp, Washington State University, Pullman
2. "Ethnicity, Sex, and Inequality: Perspectives from the National Survey of the Physical Education Professoriate" -- William H. Edwards, University of Arkansas, Fayetteville
3. "Occupational Satisfaction: Results of the National Survey of the Physical Education Professoriate" -- William H. Edwards, University of Arkansas, Fayetteville
4. "Co-Authorship: A Necessary Reality and a Credibility Concern" -- Trent E. Gabert, University of Oklahoma, Norman
5. "An Examination of Policies and Procedures Used in the Administration of Physical Education Graduate Assistantship Programs in Selected Universities" -- Patsy C. Boroviak, The University of Tennessee, Knoxville
6. "Attitudes of Children in Integrated and Segregated Physical Education Programs Toward Peers with Disabling Conditions" -- April Tripp, San Jose State University, California and Ron French, Texas Woman's University, Denton
7. "Comparison of Two Methods of Training Special Olympics Volunteers To Teach and Coach Bowling" -- Cindy L. Albright, Arkansas State University, State University
8. "Data-Based Analysis of the Need for Higher Education Personnel Specialization in Adapted Physical Education" -- John M. Dunn and Jeffrey A. McCubbin, Oregon State University, Corvallis
9. "Effects of a Personal Fitness Curriculum on Attitudinal, Cognitive and Physical Fitness Measures of Ninth Grade Students" -- Sandra L. Little, Norma J. Stumbo, Ann Nolte and Nancy L. Chapman, Illinois State University, Normal and Roberta Monroe, Chiddix Junior High School, Normal, Illinois
10. "Purposes of Physical Education as Expressed by Prospective Physical Education Majors" -- Tom Ratliffe, Patt Dodds, Sarah Doolittle, Judith Placek, Kathy Pinkham and Penny Portman, University of Massachusetts, Amherst
11. "Reliability and Validity for the Purposes for Engaging in Physical Activity Survey" -- Bethany S. Shifflett, Alison Buliavac, Pennie Howd, Jeannine O'Brien and Laura Seifert, San Jose State University, California
12. "Psychological Orientation to Exercise: The Effects of an Educational Intervention" -- Kenneth R. Fox, University of Exeter, Devon, England

13. "Using a Decision Making Model to Enhance Voluntary Participation in Physical Activity During Leisure Time" -- Robyn S. Lock, The University of Toledo, Ohio
14. "Constraints on Leisure Activity for At-Risk Inner City Youth" -- Lisa C. Pesavento Raymond, Chicago State University, Illinois and John R. Kelly, University of Illinois, Urbana-Champaign
15. "An Examination of Burnout and Leisure Satisfaction in Leisure Service Professionals" -- J. Thomas Chesnutt, Marshall University, Huntington, West Virginia and Stephen Nagy, University of Alabama, Tuscaloosa
16. "Effects of a Personal Fitness Curriculum on the Perceived Freedom of Leisure of Ninth Grade Students" -- Sandra L. Little, Illinois State University, Normal and Roberta Monroe, Chiddix Junior High School, Normal, Illinois
17. "Importance-Performance Analysis: An Evaluation Strategy for a Summer Recreation Program" -- Dean A. Zoerink, Kent State University, Ohio
18. "Leisure Satisfaction, Leisure Participation, and Leisure Activities Among Young-Old and Old-Old Adults in Nursing Homes and Senior Centers" -- Claire M. Foret, Jacqueline Robichaux and James Flaitz, University of Southwestern Louisiana, Lafayette
19. "Life Satisfaction, Leisure Satisfaction, and Leisure Participation Among Young-Old and Old-Old Adults with Rural and Urban Residence" -- Claire M. Foret, University of Southwestern Louisiana, Lafayette
20. "Relationships Between Meanings of Work and Meanings of Leisure Among Wheelchair Athletes" -- Sharon L. Hunt, University of Kentucky, Lexington

RESEARCH CONSORTIUM SYMPOSIUM: PHYSIOLOGICAL CONSIDERATIONS WHEN TRAINING THE CHILD ATHLETE

2:00 - 3:15 p.m. -- Convention Center, Room 15

ORGANIZER: Christian W. Zauner, Oregon State University, Corvallis

SPEAKERS:

"Cardiorespiratory Responses to Exercise in the Child" -- Michael G. Maksud, Oregon State University, Corvallis

"Cardiorespiratory Responses to Training in the Child" -- Paul Vaccaro, University of Maryland, College Park

"Muscle Tissue - Unique Exercise and Training Responses in the Child" -- Christian W. Zauner, Oregon State University, Corvallis

"Special Considerations when Training Children" -- Emily M. Haymes, Florida State University, Tallahassee

RESEARCH CONSORTIUM FREE PAPERS: PSYCHOLOGY OF SPORT

2:00 p.m. - 3:15 p.m. -- Convention Center, Room 13
PRESIDER: M. Rudisell, University of Houston, Texas

2:00 - 2:15 p.m. -- "The Role of Preparation Routines in Golf Performance" -- Debra J. Crews, University of North Carolina, Greensboro
2:15 - 2:30 p.m. -- "An Exploration of Stress, Burnout and Coping in Dual-Role Teacher-Coaches" -- Betty C. Kelley and Diane L. Gill, University of North Carolina, Greensboro
2:30 - 2:45 p.m. -- "Psychological and Performance Antecedents of the Most Valuable Player Construct in College Basketball Players" -- James E. Lidstone, South Dakota State University, Brookings
2:45 - 3:00 p.m. -- "The Influence of Goal Perspective on Perceived Exertion and Affect Ratings During Submaximal Exercise" -- Joan L. Duda, Darlene A. Sedlock, Bruce J. Noble, Barry S. Cohen, and Likang Chi, Purdue University, West Lafayette, Indiana
3:00 - 3:15 p.m. -- "Teacher vs. Peer Models: A Replication of the Landers and Landers (1973) Study" -- Cathy D. Lirgg and Deborah L. Feltz, Michigan State University, East Lansing

RESEARCH CONSORTIUM POSTER SESSION: MOTOR BEHAVIOR

2:00 - 3:15 p.m. -- Convention Center, Rooms 22 and 24
PRESIDER: M. Satern, Kansas State University, Manhattan

1. "A Spectrum-Velocity Protocol for Measuring Squat Performance in Young Women" -- Lawrence W. Weiss, Memphis State University, Tennessee
2. "The Effects of Different Levels of Muscular Strength on the Kinematics of Lifting" -- Gina L. Sharpe, Berry College, Rome, Georgia; Wendell P. Liemohn, Jack Wasserman and John Hungerford, University of Tennessee, Knoxville
3. "Kinematics and Impulse Characteristics of Modern Dance Landings" -

- Jill L. McNitt-Gray, University of Southern California, Los Angeles and Susan Koff, Pennsylvania State University, University Park

4. "Descriptive Kinematic and Kinetic Analysis of Rugby Drop Kicks" -- Thomas W. Kernozek and Mark D. Ricard, Illinois State University, Normal
5. "Analysis of Variability in Basketball Free Throw Shooting Styles" -- Miriam N. Satern and Sallie Keller-McNulty, Kansas State University, Manhattan
6. "The Effects of Alcohol Intoxication on Motor Performance Impairment" -- Mary E. Taylor-Nicholson, MinQi Wang, Collins O. Airhihenbuwa, Beverly Mahoney, Robert Christina and Dolores Maney, Pennsylvania State University, University Park
7. "Programming Time and Index of Difficulty in Multiple-Target Tasks With Direction Changes" -- Mark G. Fischman, Auburn University, Alabama and W. Greg Mucci, Northern Illinois University, DeKalb
8. "Variation in the Relative Timing of Movement Phases" -- Beth E. Barnett, Manhattan College, Bronx, New York
9. "Interaction of Hand Preference and Movement Direction during Response Programming of Elite Female Athletes" -- Pamela Hoyes Beehler, The University of Texas, Arlington
10. "The Interaction of Instructions and Accuracy Demand on the Programming of Rapid Motor Responses" -- Ben Sidaway, Louisiana State University, Baton Rouge
11. "Age-Related Differences in the Control of Spatial Aiming Movements" -- Noreen L. Goggin, University of North Texas, Denton
12. "Implicit Versus Explicit Learning of Basketball Rules" -- Kellie G. Hall and Robert C. Mathews, Louisiana State University, Baton Rouge
13. "Independence of Movement Complexity and Foreperiod Effects on Response Preparation Processes" -- Mark A. Guadagnoli and T. Gilmour Reeve, Auburn University, Alabama
14. "The Effect of Same and Mixed Stimulus-Response Assignments on Spatial Compatibility" -- Lanie A. Dornier and T. Gilmour Reeve, Auburn University, Alabama
15. "Video Game Experience: A Possible Sociocultural Explanation for Coincidence Anticipation Differences" -- Jolynn S. Kuhlman, Indiana State University, Terre Haute and Patricia A. Beitel, The University of Tennessee, Knoxville
16. "The Effects of Various Basketball Sizes Upon the Shooting Performance and Technique of Sixth Grade Boys and Girls" -- Charles D. Mead, University of Kansas, Lawrence
17. "The Relationship of Selected Factors to Young Children's Divergent Movement Ability" -- Frances E. Cleland, Indiana University, Bloomington
18. "A Comparative Analysis of Depth Perception of Nonhandicapped and Learning Disabled Children" -- Sherry L. Folsom-Meek, University of Missouri, Columbia and Jean L. Pyfer, Texas Woman's University, Denton

19. "A Self-Modeling Videotape Exercise Program to Improve Balance in Disabled Elderly Individuals" -- Debra Bill-Harvey, Marion E. Iezzi, Nancy A. Neef and Gerry H. Giess, The Devereux Foundation, Institute of Clinical Training & Research, Devon, Pennsylvania

20. "Validation of Dynamic Balance Measures for Severe Levels of Mental Retardation" -- Jim DePaepe, University of New Mexico, Albuquerque

RESEARCH CONSORTIUM: BUSINESS MEETING

3:45-5:30 -- Convention Center, Room 15

SATURDAY, MARCH 31, 1990

RESEARCH CONSORTIUM FREE PAPERS: MOTOR DEVELOPMENT - PSYCHOLOGICAL ASPECTS

9:00 a.m. - 10:15 a.m. -- Convention Center, Room 15
PRESIDER: B. Ulrich, Indiana University, Bloomington

9:00 - 9:15 a.m. -- "The Relationship Between Children's Perceived and Actual Motor Skill Competence" -- Mary E. Rudisill, University of Houston, Texas, Matthew T. Mahar, Springfield College, Massachusetts, Karen S. Meaney, University of Houston, Texas

9:15 - 9:30 a.m. -- "Enhancing Self-Perceptions of Children Through the Use of a Task-Oriented Physical Education Program" -- Sherry L. Newsham, International Institute for the Enhancement of Human Performance, Encinitas, California

9:30 - 9:45 a.m. -- "Comparison of Perceptions and Self-Esteem of High and Low Fitness Groups in Elementary Children" -- Mary E. Engelman, University of Houston, Texas

9:45 - 10:00 a.m. -- "Inhabiting Level and Skill Proficiency Effects on Boys' Satisfaction, Involvement, and Affective Expression in a Game Setting" -- Melissa L. Heston, University of Northern Iowa, Cedar Falls

10:00 - 10:15 a.m.- "Assessment of Movement Confidence: Responses of Elementary School Children to Two Different Inventories" -- Michael E. Crawford, University of Missouri, Columbia, Norma S. Griffin, and Nancy A. Ray, University of Nebraska, Lincoln

RESEARCH CONSORTIUM FREE PAPERS: BIOMECHANICS

9:00 a.m. - 10:15 a.m. -- Convention Center, Room 13
PRESIDER: J. Jensen, Indiana University

9:00 - 9:15 a.m. -- "Body Segment Parameters and Isokinetic Torque in Women" -- Jackie L. Hudson, University of North Carolina, Greensboro, and Jerry D. Wilkerson, Texas Woman's University, Denton

9:15 - 9:30 a.m. -- "Force Versus Power Overload Simulator Training for Gymnastic Press to Handstand" -- Y. Takei, Northern Illinois University, DeKalb and Joseph A. Mastropaolo, Trisphere Institute of Sports Medicine, Huntington Beach, California

9:30 - 9:45 a.m. -- "Effects of a Hamstring Eccentric Exercise Program on the Concentric Hamstring/Quadricep Torque Ratio" -- Kornelia Kulig and Paul G. Redmond, Oakland University, Rochester, Michigan

9:45 - 10:00 a.m. -- "A Kinematic Analysis of the Pelvis and Upper Trunk During a Forceful Overarm Throw" -- Susan Bullard, University of Wisconsin, Madison

10:00 - 10:15 a.m.- "Three-Dimensional Kinematics of the Trunk During Baseball Pitching" -- Michael E. Feltner, Pepperdine University, Malibu, California

RESEARCH CONSORTIUM POSTER SESSION: EXERCISE PHYSIOLOGY

9:00 - 10:15 a.m. -- Convention Center, Rooms 22 and 24
PRESIDER: L. Hensley, University of Northern Iowa, Cedar Falls

1. "Lipoprotein Profiles of Male and Female Cigarette Smokers and Non-Smokers" -- Scott G. Owens, Linda F. Chitwood and Robert J. Moffatt, Florida State University, Tallahassee and Bryant A. Stamford, University of Louisville, Kentucky
2. "The Relationship Between Regional Adiposity and Hypertension" -- Mickey A. Roscoe, Joseph E. Donnelly and John M. Jakicic, Kearney State College, Nebraska
3. "Association Between Fitness Level and Stress Reactivity" -- Jeffrey E. Brandon, New Mexico State University, Las Cruces and J. Mark Loftin, University of New Orleans, Louisiana
4. "A Weight Training Program for Adults with Mental Retardation" -- James H. Rimmer, Northern Illinois University, and Luke E. Kelly, University of Virginia, Charlottesville
5. "Increasing Independent Aerobic Exercise of Students with Mental Retardation" -- Cindy Jones and Pamela Cress, University of Kansas

6. "The Reliability of Four Measures of Cardiovascular Fitness in Adults with Mental Retardation" -- Marsha Cressler-Chaviz, Lynn Maguire Physical Therapy Clinic, Las Vegas, Nevada; Barry Lavay, California State University, Long Beach, and Mark Giese, Northeastern State University, Oklahoma
7. "Effects of an Exercise Program on Lower Extremity Strength Among Older Women" -- C. Jessie Jones, University of New Orleans, Louisiana; Jackie Robichaux and Paula Williams, University of Southwestern Louisiana
8. "Heart Rate and VO_2 Relationship During Low-Impact Aerobics" -- Kathy Leggett and Forrest Dolgener, University of Northern Iowa, Cedar Falls
9. "The Relationship of Maximal Lifting Capacity to Push-ups and Absolute Muscular Endurance" -- Thomas E. Ball, Joseph J. Invergo and James Blaz, Northern Illinois University, De Kalb
10. "Adherence and Body Composition Changes Associated With A One-Year Walking and Exercise Program" -- Richard B. Parr and Shu-Ping Hodgson, Central Michigan University, and Joyce A. Gage, St. Luke's Hospital, Ft. Wayne, Indiana
11. "The Influence of Fitness Level on Postexercise Energy Expenditure" -- Darlene A. Sedlock, Purdue University, West Lafayette, Indiana
12. "The Physiological Responses to an Aerobic Dance Routine Using Hand-Held Weights" -- Cynthia A. Leonard, Walter R. Thompson, Frank J. Servedio and Tommy Boone, The University of Southern Mississippi, Hattiesburg
13. "Caloric Expenditure and Fuel Utilization During 60 Minutes of Walking" -- Linda F. Chitwood, Scott G. Owens and Robert J. Moffatt, Florida State University, Tallahassee
14. "Metabolic and Perceived Exertion Responses to Stationary Water Cycling" -- Blanche W. Evans, Indiana State University, Terre Haute
15. "The Effect of Water Exercise on Various Parameters of Physical Fitness" -- Janet K. Wigglesworth, Indiana University, Bloomington; Jeff E. Edwards and Alan Mikesky, National Institute for Fitness & Sport, Indianapolis, Indiana and Elizabeth Evenbeck, IUPUI, Indianapolis, Indiana
16. "Effects of Addition of Arm Movements With and Without Handheld Weights to Rebounding Exercise" -- Joe F. Smith, Phil Bishop and Maridy Bronstein, The University of Alabama, Tuscaloosa
17. "Predicting VO_2max From a One-Mile Walk Test in College Students" -- Forrest A. Dolgener, Larry D. Hensley, Jeanette J. Marsh and Jill K. Fjelstul, University of Northern Iowa, Cedar Falls
18. "Body Height: Effect on Metabolic Cost During the Bruce Treadmill Test" -- Tom E. Ward, Henderson State University, Arkansas; Barry C. McKeown and Curtis L. Hart, The University of Texas, Arlington,
19. "Strength and Flexibility Symmetry in the Lower Extremity of Osteoarthritic Women" -- Kathleen M. Knutzen, Lorraine R. Brilla, Vauhn Wittman and Kevin Quinn, Western Washington University,

Bellingham

20. "The Energy Cost of a 20 Minute Steady State Criterion Referenced Cardiorespiratory Fitness Test in Teenage Youth" -- Tinker D. Murray, Southwest Texas State University, San Marcos ; John L. Walker, University of Houston, Texas; William G. Squires, Texas Lutheran College, and Donald F. Haydon, University of Texas, Austin

21. "Effects of the Canadian Standardized Test of Fitness on Exercise Behavior" -- William J. Rutherford, Arizona State University, Tempe

RESEARCH CONSORTIUM FREE PAPERS: SPECIAL POPULATIONS

10:45 a.m. - 12:00 noon -- Convention Center, Room 13
PRESIDER: M. Block, University of Maryland, College Park

10:45 - 11:00 a.m. --"A Comparison of Participation Incentives Among Adult and Youth Wheelchair Basketball Players" -- Frank M. Brasile, University of Nebraska, Omaha, and Bradley N. Hedrick, University of Illinois, Champaign-Urbana.

11:00 - 11:15 a.m. --"Disability Condition, Training and Experience: They do Make a Difference in Perceived Competence and Attitude" -- Ellen Herman and Walter P. Vispoel, University of Iowa, Iowa City

11:15 - 11:30 a.m. --"Contextual Interference Effects on Transfer and Retention of Golf Putting Skills by Adolescents with Moderate Mental Retardation" -- Fiona J. Connor, Fort Hays State University, Kansas, Garth T. Tymeson, and Marilyn A. Looney, Northern Illinois University, DeKalb

11:30 - 11:45 a.m. --"Effects of Education on Mother's Beliefs About the Abilities of Their Developmentally Delayed Preschool Children" -- Judy P. Chandler, University of Kansas, Lawrence

11:45 - 12:00 noon -"Effects of Exercise and Diet on Body Composition and Cardiovascular Fitness in Mentally Retarded Adults" -- Ronald V. Croce, University of New Hampshire, Durham

RESEARCH CONSORTIUM FREE PAPERS: MEASUREMENT & EVALUATION

10:45 a.m. - 12:00 noon -- Convention Center, Room 15
PRESIDER: M. Looney, Northern Illinois University

10:45 - 11:00 a.m. --"An Application of Item Response Theory to the Test of Gross Motor Development" -- Emily L. Cole, Indiana University, Bloomington, Terry M. Wood and John M. Dunn, Oregon State University, Corvallis

11:00 - 11:15 a.m. --"Motor Skills Inventory: Determining the Minimal Conditions for Testing Young Children" -- Dale A. Ulrich, Indiana University, Bloomington

11:15 - 11:30 a.m. --"Age and Gender Factors in Setting Health Fitness Standards for Physical Best: Age 10 - 18" -- Weimo Zhu and Margaret J. Safrit, University of Wisconsin, Madison

11:30 - 11:45 a.m. --"Validity and Reliability of Hand-Held Dynamometry in Assessing Strength Measures in Normal and Mentally Retarded Adults" -- Rory Suomi, Paul R. Surburg, and Wendy G. Poppy, Indiana University, Bloomington

11:45 - 12:00 noon -"Comparison of the Validity of the 12-Minute Swim and Run as Field Tests of Maximal Aerobic Power in Young Men" -- Donovan S. Conley, Kirk J. Cureton, Don R. Dengel, and Peter G. Weyand, University of Georgia, Athens

RESEARCH CONSORTIUM POSTER SESSION: PSYCHOLOGY, SOCIOLOGY, AND HISTORY OF SPORT

10:45 - 12:00 NOON -- Convention Center, Rooms 22 and 24
PRESIDER: D. McDonald, Iowa State University, Ames

1. "Values Held by Prospective Coaches Towards Women's Sport Participation" -- J. Drowatzky and Alan Ashby, University of Toledo, Ohio; Christopher Hallinan, University of Richmond, Virginia and Eldon Snyder, Bowling Green State University, Ohio
2. "RPE Influenced by Experimental Design Interaction" -- David L. Wenos, Indiana University, Bellingham
3. "Exercise Adherence of Hemodialysis Patients" -- Andi Williams,

Robin Stephens and Stephen Dodd, Louisiana State University, Baton Rouge and Ted McKnight, Greater Baton Rouge Dialysis Center, Louisiana

4. "A Comparison Between the Psychological Profiles of Wheelchair Athletes, Wheelchair Nonathletes, and Able-Bodied Athletes" -- Glenn M. Roswal, Jacksonville State University, Alabama, Donna P. Jacobs, Carroll County Schools, Georgia and Michael A. Horvat, University of Georgia, Athens
5. "Emergent and Informal Leadership: A Preliminary Study" -- Dale G. Pease, University of Houston, Texas
6. "A Comparison of Disabled and Able-Bodied Athletes Relative to Selected Mood States" -- Richard H. Cox and Ronald W. Davis, Ball State University, Muncie, Indiana
7. "Effects of a Cognitive-Behavioral Instructional Self-Talk Training Program Upon a Perceptual Motor Task" -- Tova R. Rubin, North Carolina A&T State University, Greensboro
8. "Sportpsy on Bitnet" -- Michael L. Sachs, Temple University, Philadelphia, Pennsylvania
9. "The Relationship Between Teachers' Perception of Children's Motor Skill Competence and Children's Perceived and Actual Motor Skill Competence" -- Karen S. Meaney and Mary E. Rudisill, University of Houston, Texas and Matthew T. Mahar, Springfield College, Maine
10. "Attitudes Toward Sport Participation as a Function of Sex, Sport, and Level of Ability and Participation" -- William J. Tharion, University of Massachusetts, Amherst
11. "Collaborative Action Research and a Behavioral Coaching Intervention: A Case Study" -- Vikki Krane and Robert Eklund, University of North Carolina, Greensboro, and Marcia McDermott, University of Maryland, College Park
12. "Self-Efficacy Exercise Expectations in an Elderly Population of Exercisers and Non-Exercisers" -- Edward G. Lamp, Fredrick F. Andres, William Wiersma and James H. Price, University of Toledo, Ohio
13. "Effect of a Weight Training Class on the Physical Self-Efficacy of Male and Female College Students" -- Dean F. Anderson and Michael J. Divello, Iowa State University, Ames
14. "Sport Psychology in the Training Room: A Survey of Athletic Trainers" -- Diane M. Wiese, University of Minnesota, Minneapolis, Maureen R. Weiss, University of Oregon, Eugene and David P. Yukelson, Pennsylvania State University, University Park
15. "Factors Influencing the Exercise Adherence Levels of Novice Exercisers" -- W. Michael Felts and Kymberly D. Long-Wallace, East Carolina University, Greenville, North Carolina
16. "Evidence for a Total Mood Disturbance Score on the POMS for Athletes" -- Steven W. Edwards, Oklahoma State University, Stillwater
17. "Gender Differences in Desirable Body Images Among Athletes and

Non-Athletes" -- Christopher Hallinan, Jan E. Evans and Ed Pierce, University of Richmond, Virginia

18. "The Effect of Trait Anxiety and Fitness Level on Heart Rate and State Anxiety Responses to a Psychosocial Stressor" -- Joan L. Duda and Darlene A. Sedlock, Purdue University, West Lafayette, Indiana
19. "The Effect of a Placebo Ergogenic Aid on Muscular Endurance, Strength, and Self Perception" -- Mark A. Thompson and David L. Cook, University of Kansas, Lawrence and J. Dirk Nelson, Missouri Southern State College, Joplin
20. "A Developmental Analysis of Competitive Orientation in Team and Individual Sports" -- Thomas A. Crawford, The National Institute for Fitness and Sport, Indianapolis, Indiana and David L. Gallahue, Indiana University, Bloomington
21. "The Impact of Bicycle Advertising and Promotional Techniques on the Legitimation of Sport Between 1883 and 1903" -- Lawrence W. Fielding and Brenda G. Pitts, University of Louisville, Kentucky
22. "Women's Physical Education and Athletics at the University of New Mexico: 1891 - 1913" -- L. Kay Morgan, Kalamazoo, Michigan
23. "The Relationship Between Athletic Ability and Social Desirability Within Eleven and Twelve Year Old Male Baseball Players" -- Phillip W. Lowcock, James D. LaPoint and David L. Cook, University of Kansas, Lawrence
24. "The Influence of Direct and Ambiguous Information on the Evaluation of Male and Female Assistant Coaching Applicants" -- Sharon A. Mathes and Mary Kriener, Iowa State University, Ames
25. "The Role of Transformational and Transactional Leadership Behaviors on Subordinate Performance and Satisfaction" -- Carolyn Vos Strache and Rachel Novak, Pepperdine University, Malibu, California
26. "Educators and Athletic Directors Agree on Management Competencies" -- Sandra L. Hupp and Deb Endersbe, Washington State University, Pullman

RESEARCH CONSORTIUM SYMPOSIUM: DESCRIPTIVE DANCE RESEARCH

2:00 - 3:15 p.m. -- Convention Center, Room 12

ORGANIZER: Lynnette Y. Overby, Howard University, Washington
SPEAKERS:

"Current Applications of Laban Movement Analysis in Dance Research" -- Billie Lepczyk, Virginia Polytechnic Institute and State University, Blacksburg

"Dance Survey Research" -- Lynnette Y. Overby, Howard University, Washington, DC

"Process-Product Dance Research" -- Sandra Minton, University of Northern Colorado, Greeley

RESEARCH CONSORTIUM FREE PAPERS: CURRICULUM/PEDAGOGY IN PHYSICAL EDUCATION

2:00 p.m. - 3:15 p.m. -- Convention Center, Room 13
PRESIDER: N. Faucette, San Diego State University, California

2:00 - 2:15 p.m. -- "Examination of Knowledge Structures Within the Parameters of a Concept-Based Curriculum" -- Catherine D. Ennis, University of Maryland, College Park

2:15 - 2:30 p.m. -- "Teachers' Judgments in Secondary School Physical Education Curriculum Decision-Making" -- Linda M. Lander, Bowling Green State University, Ohio

2:30 - 2:45 p.m. -- "Effect of Knowledge on Teachers' Interactive Thinking During Throwing Instruction" -- Edward Walkwitz, Southeastern Louisiana University, Hammond, and Amelia Lee, Louisiana State University, Baton Rouge

2:45 - 3:00 p.m. -- "Modifying Perceptions of Elementary Classroom Teachers Concerning Physical Education" -- Ray T. Cool, University of Louisville, Kentucky

3:00 - 3:15 p.m. -- "The Validity of Academic Learning Time-Physical Education (ALT-PE) as a Process Measure of Achievement" -- Stephen Silverman, Rachel Devillier, and Teresita Ramirez, University of Texas, Austin

RESEARCH CONSORTIUM POSTER SESSION: PHYSICAL FITNESS

2:00 - 3:15 p.m. -- Convention Center, Rooms 22 and 24
PRESIDER: J. P. Wallace, Indiana University, Bloomington

1. "Anthropometric and Strength Characteristics of High School Age Females with Patellofemoral Pain" -- Robert I. Moss and Mary L. Dawson, Western Michigan University, Kalamazoo and Paul DeVita, Southern Illinois University, Carbondale
2. "The Effects of Fitness Test Type, Teacher, and Gender on Exercise Intrinsic Motivation and Physical Self-Worth" -- James R. Whitehead,

University of North Dakota, Grand Forks and Charles B. Corbin, Arizona State University, Tempe

3. "Determination of the Aerobic Fitness Value of Selected Physical Education Activities" -- Michael E. Crowhurst, James R. Morrow, Jr., James M. Pivarnik and Andrew S. Jackson, University of Houston, Texas and John T. Bricker, Baylor College of Medicine, Houston, Texas
4. "The Accuracy of Self-Assessed Heart Rates and Time in Target Heart Rate Ranges of Participants in Aerobic Dance" -- John S. Anderson and Jean M. Frazier, East Tennessee State University, Johnson City and Jenny Brock, Texas Instruments Corporation, Texas Texas
5. "Physical Fitness Trends in a Large Population of 12-17 Year Old Children: 1980-89" -- Michael S. Willett, Wynn F. Updyke, Jean Burke and Loretta Sollars, Indiana University, Bloomington
6. "Physical Fitness Trends in Large Population of 6-11 Year Old Children: 1980-1989" -- Wynn F. Updyke, Michael S. Willett, Jean Burke and Loretta Sollars, Indiana University, Bloomington
7. "Physical Fitness Levels of Maine Children" -- Holly R. Lehnhard, Robert A. Lehnhard, Scott F. Marion and Donna M. Beckwith, University of Maine, Orono
8. "The Effect of Pace Training on Children's Performance Time and Heart Rate Response During a One-Mile Run" -- William A. Saltarelli, Central Michigan University, Mt. Pleasant,; Fred F. Andres, The University of Toledo, Ohio and Michael Cunningham, Ohio State University, Lima
9. "A Comparison of the Physical Fitness Levels of Elementary School Learning-Disabled, Gifted and Regular Education Students" -- Dorothy T. Kowalski, University of Wisconsin Center, Marinette and Patricia J. Fellows, University of Wisconsin Center, Richland
10. "Health-Related Physical Fitness in Children with Insulin-Dependent Diabetes Mellitus" -- Guyton Hornsby, East Tennessee State University, Johnson City and Kenneth M. Spicer, Medical University of South Carolina, Charleston
11. "Comparison of Male and Female Fifth Graders on Physical Fitness Performance" -- Bradley A. Hanson, Northwood Junior High School, Conway, Arkansas and Jimmy H. Ishee, University of Central Arkansas, Conway
12. " 'Physical Best' In the Corporate Setting: A Family Oriented Approach" -- Stephanie J. Pronk, Holli K. Spicer and Lyn J.J. Neill, Westinghouse Electronic Assembly Plant, College Station, Texas and Nico P. Pronk, Texas A&M University, College Station
13. "Linear Relationships Between Physical Fitness Levels and Absenteeism Rate of Police Officers" -- Robert W. Boyce, Ann R. Hiatt and Donna J. McLain, The University of North Carolina, Charlotte, and Glenn R. Jones

14. "The Relative Effects of Daily and Weekly Physical Education Programs on Childrens Fitness Levels" -- Arlene Anne Ignico, Ball State University, Muncie, Indiana
15. "A Five Year Longitudinal Study of the Flexibility of School Children" -- Robert P. Pangrazi and Charles B. Corbin, Arizona State University, Tempe
16. "An Evaluation of the Travelers Companies Employee Assistance Program" -- Angela B. Miller, Yale University, New Haven, Connecticut, David Snow, The Travelers' Taking Care Center, Hartford, Connecticut and Thomas Golaszewski, The Center for Corporate Health Promotion, Reston, Virginia
17. "The Effect of Physical Activity on Self Assessed Life Satisfaction and Health Status in Elderly: A 12 Month Follow-up" -- Catherine A. Kennedy and Sandra M. Schleiffers, Colorado State University, Ft. Collins
18. "Cardiovascular Health of Older Middle-Aged Men During 20 Years of Physical Conditioning" -- Janet P. Wallace, Indiana University, Bloomington and Steve P. Van Camp and Fred W. Kasch, San Diego State University, California
19. "Physical Fitness as a Function of Gender and Fitness Activity Level Among College Freshman Men and Women" -- Daniel D. Adame, Thomas C. Johnson and Steven P. Cole, Emory University, Atlanta, Georgia
20. "Incidence of Breast Feeding Problems Associated with Exercise in Lactating Mothers Who Exercise Regularly" -- Jennifer Brown and Janet P. Wallace, Indiana University, Bloomington
21. "A Comparison of Attitudes and Exercise Habits of Alumni From Universities With Varying Degrees of Required Physical Education Programs" -- Paul Brynteson and Thomas Adams, II, Arkansas State University, State University
22. "The Ability of Parent and Teacher Ratings of Physical Fitness to Predict Physical Working Capacity in Children" -- Juliane R. Fenster, Cara B. Ebbeling, Patty S. Freedson, Ann Ward, Elaine Puleo and James Rippe, University of Massachusetts Medical Center, Worcester
23. "Prediction of Participation in Physical Exercise Utilizing Perceived Susceptibility, Benefits, Barriers, Social Influences, Cues to Action, Physical Self-Efficacy, and Health Locus of Control" -- Dean F. Anderson and Charles M. Cychosz, Iowa State University, Ames
24. "Safety and Validity of the Kraus-Webber Test of Minimal Strength and Flexibility" -- Stephen A. Butterfield and Robert A. Lehnhard, University of Maine, Orono
25. "An Alternative Approach to Skinfolds for Assessing Body Composition in Children Aged 6 to 13 Years" -- Cara B. Ebbeling, Julie Fenster, Ann Ward, Elaine Puleo, Patty S. Freedson and James M. Rippe, University of Massachusetts Medical Center, Worcester
26. "The Relationship Between Basal Metabolic Rate and the Components of Body Composition in Adult Males" -- Milan Svoboda, Gary

Brodowicz, Herman Frankel, Tony Cichoke, Brian Fish, Jan Polychronis and Greg Tipton, Portland State University, Oregon

RESEARCH CONSORTIUM SYMPOSIUM: DRUG FREE SCHOOLS & COMMUNITIES: EVALUATION OF SELECTED PROGRAMS

3:45 - 5:30 p.m. -- Convention Center, Room 15

ORGANIZER: Michael Young, University of Arkansas, Fayetteville
SPEAKERS:

"Evaluation of a Program Involving Law Enforcement Officers as Drug Educators" -- Susan Rausch and Michael Young, University of Arkansas, Fayetteville

"A Correspondence-Based Drug Prevention Program for Children" -- Chudley E. Werch, University of North Florida, Gainesville, Michael Young, Margo Clark, Carol Garrett, Sarah Hooks, and Carolyn Kersten, University of Arkansas, Fayetteville

"Drug Free Schools and Communities Projects at Bowling Green State University" -- Molly Laflin, David Weiss, and Clay Williams, Bowling Green State University, Ohio

RESEARCH CONSORTIUM SYMPOSIUM: AN INTEGRATED APPROACH TO THE STUDY OF COGNITIVE-PSYCHOLOGICAL VARIABLES WHICH INFLUENCE ACTUAL AND PERCEIVED PERFORMANCE OUTCOMES AMONG ADOLESCENT RIFLE SHOOTERS

3:45 - 5:30 p.m. -- Convention Center, Room 13

ORGANIZER: Debra J. Rose, Oregon State University, Corvallis
SPEAKERS:

"Why has there been so little Research Integrating Sport Psychology and Motor Learning?" -- Debra J. Rose, Oregon State University, Corvallis and Maureen Weiss, University of Oregon, Eugene

"Motor Learning and Sport Psychology Combine to Study the Sport of Rifleshooting: Describing the Research Project" -- Vicki Ebbeck, University of Oregon, Eugene and Susan Hobbel, Oregon State University, Corvallis

"A Practical Review of Research Findings" -- Maureen Weiss, University of Oregon, Eugene and Debra J. Rose, Oregon State University, Corvallis

SUNDAY, APRIL 1, 1990

RESEARCH CONSORTIUM: INVITED TUTORIAL LECTURE

9:00 - 10:15 a.m. -- Convention Center, Room 15
PRESIDER: Mary Jo Kane, University of Minnesota, Minneapolis

"Research on Women and Leisure: More Truth than Facts" -- Karla Henderson, University of North Carolina at Chapel Hill

RESEARCH CONSORTIUM FREE PAPERS: PHILOSOPHICAL/SOCIOLOGICAL PERSPECTIVES OF SPORT

9:00 a.m. - 10:15 a.m. -- Convention Center, Room 13
PRESIDER: J. Rintala, Northern Illinois University, DeKalb

9:00 - 9:15 a.m. --	"Conservative and New Left Theories of Sport -- A Critical Analysis" -- Karin A. E. Volkwein, University of Tennesee, Knoxville
9:15 - 9:30 a.m. --	"Childhood Play Experiences of Women in Traditional and Nontraditional Professions" -- Steve Overman and P. Boyne Coats, Jackson State University, Mississippi
9:30 - 9:45 a.m. --	"The Dynamics of Inter-Organization Conflict in a Youth Sport League" -- Laurence Chalip, University of Maryland, College Park and E. Philip Scott, LBJ Library, Austin, Texas
9:45 - 10:00 a.m. --	"The 'Sport Career Death' of College Athletes: Involuntary and Unanticipated Retirements" -- Elaine M. Blinde and Terese M. Stratta, Southern Illinois University, Carbondale
10:00 - 10:15 a.m. --	"Parallels Between the Women's Sport and the Disabled Sport Movements" -- Marcia Karwas and Karen P. DePauw, Washington State University, Pullman

RESEARCH CONSORTIUM POSTER SESSION: HEALTH

9:00 - 10:15 a.m. -- Convention Center, Rooms 22 and 24
PRESIDER: T. Manning, Oklahoma State University, Stillwater

1. "Knowledge About AIDS, Sexual Practices and Health Locus of Control Among College Students" -- M. Christine Nagy, Stephen Nagy and Nancy J. Davis, The University of Alabama, Tuscaloosa
2. "Assessment of Clergy Knowledge and Attitudes Toward Near-Death Phenomena" -- Lori J. Bechtel and Richard A. Pierce, Pennsylvania State University, Altoona and Barbara A. Walker, Eastern Illinois University, Charleston
3. "AIDS and Contraceptive Behavior: Male and Female Differences" -- MinQi Wang and Mary E. Taylor-Nicholson, Pennsylvania State University, Altoona and Daniel D. Adame, Emory University, Atlanta, Georgia
4. "Specific Sex Education Topic Instruction Time" -- Michael R. Davey, Western Illinois University, Macomb
5. "Body Figure Perceptions and Preferences Among Preadolescent Children" -- M. Elizabeth Collins, University of Florida, Gainesville
6. "Results from the Cholesterol Screening and Health Risk Appraisal at the 1988 OAHPERD Convention" -- Lynn A. Darby, Bowling Green State University, Ohio and Roberta L. Pohlman, Wright State University, Dayton, Ohio
7. "The Smoke-Free 2000 Campaign in Texas: An Analysis of Factors Influencing the Diffusion of Classroom Materials" -- Phyllis Levenson Gingiss, University of Houston, Texas; Nell Gottlieb, The University of Texas, Austin and Susan Brink, University of Texas Center for Health Promotion Research, Houston
8. "Association of Perceived Susceptible, Benefits, Barriers, Physical Self-Efficacy and Health Locus of Control with Focus CHD Risk Factors" -- Charles M. Cychosz, Dean F. Anderson and Wallace Hutchison, Iowa State University, Ames
9. "Perceived Barriers to Health Behaviors: Differences in Groups Defined by Gender and High/Low Engagement in Health Practices" -- Marlene K. Tappe and Linda J. Stonecipher, Purdue University, West Lafayette, Indiana
10. "Results of the Florida Health Education Survey" -- Steve M. Dorman, Barbara A. Rienzo, and R. Morgan Pigg, University of Florida, Gainesville and Mae Waters, Florida Department of Education, Tallahassee
11. "The Influence of Attitudes Towards Drugs on the Relationship Between Self-Esteem and Drug Use" -- Molly T. Laflin and David L. Weis, Bowling Green State University, Ohio and Mary Jo Kane, University of Minnesota, Minnespolis
12. "The Medical, Social and Economic Impact of AIDS: Implications for the Health Educator" -- Charles Johnson, Ann Hines and Steven

Furney, Southwest Texas State University, San Marcos

13. "Steroid Use in High School Athletes" -- Edgar W. Shields, Jr., University of North Carolina, Chapel Hill
14. "A Comparison of Manual and Computerized Dietary Assessment Tools: Nutrition Profile Plus vs. A Six-Day Food Record" -- Rachelle D. Flanagan and Roseann M. Lyle, Purdue University, West Lafayette, Indiana
15. "Self Reported Drug Use Indices as Predictors of Adverse Consequences Among College Students" -- Elizabeth W. Edmundson and Tony I. Haden, The University of Texas, Austin
16. "A Comparative Analysis of Wellness Attitudes of Suicidal and "At Risk" College Students" -- Jody A. Brylinsky and Michael R. Hoadley, University of South Dakota, Vermillion
17. "A Correlation of Student Behavior for Attendance and GPA Before and After Attending Support Groups" -- Jane M. Gutting, Educational Service District 105, Yakima, Washington and Teresa L. Martin, Central Washington University, Yakima
18. "The Effectiveness of a Drug Education Curricular Unit on Sixth Graders Attitude and Behavior Toward Drug Use" -- Matthew O. Adeyanju, Linda Cooper and Diane McDermott, University of Kansas, Lawrence and Ray Tricker, Oregon State University, Corvallis
19. "Impact of Cholesterol Screening on Young Adults" -- John K. Scheer, Deborah Loper and Loree Wagner, University of Nebraska, Lincoln
20. "Correlates of Early Sexual Involvement" -- Michael Young and Pennie Core-Gebhart, University of Arkansas, Fayetteville and Susan Hart, FLE Consultant, Austin, Texas
21. "Prevalence and Factors Associated with Drug Abuse Among Teenagers: What Schools Can Do About It" -- Mohammad R. Torabi, Indiana University, Bloomington
22. "Beliefs Associated with Ergogenic Aid Usage in High School Athletes" -- Sandra K. Cross and Diane E. Butterworth, California State University, San Bernardino
23. "Personal and Social Motivations as Predictors of Alcohol and Other Drug Use Among College Students" -- Tony L. Haden and Elizabeth W. Edmundson, The University of Texas, Austin
24. "Suicide Behavior and Knowledge of Alabama Adolescents" -- Janis A. Simpson, Stephen Nagy and Barry P. Hunt, The University of Alabama, Tuscaloosa and Anthony G. Adcock, Troy State University, Alabama
25. "An Examination of Weight Control Behaviors of Alabama Adolescents" -- Barry P. Hunt, Janis Beaird, and Stephen Nagy, The University of Alabama, Tuscaloosa and Anthony G. Adcock, Troy State University, Alabama
26. "Impact of an Educational Intervention on a Cohort of Alpha-1 Antitrypsin Deficient Teenagers" -- Esther L. Moe and Michael A. Wall, Oregon Health Sciences University, Portland and Lorraine G.

Davis, University of Oregon, Eugene

27. "A Description Analysis of Adventure Therapy Programs for Substance Abusers" -- Michael A. Gass, University of New Hampshire, Durham
28. "Using Theater to Provide Effective HIV/AIDS Education to Teens" -- Joyce V. Fetro, ETR Associates, Santa Cruz, California; Michael Spokane and Mei Tow-Lam, San Francisco Unified School District, California
29. "Differences in Child Rearing Attitudes Between Parenting and Non-Parenting Female Adolescents in a Rural Setting" -- Brian R. Barthel, The University of West Florida, Pensacola
30. "The Relationship of Religious Literalism and Other Religiosity Factors to Sex Guilt and Sexual Behavior" -- Michael Young, University of Arkansas, Fayetteville, Betty Hubbard and Emogene Fox, University of Central Arkansas, Conway
31. "Family Factors as Significant Contributors in Drug Usage Outcome Among Offspring" -- Terri Mulkins Manning, Oklahoma State University, Stillwater

RESEARCH CONSORTIUM SYMPOSIUM: RESEARCH ON PHYSICAL EDUCATION AND SPORT FOR DISABLED INDIVIDUALS: INTERNATIONAL PERSPECTIVES

10:45 - 12:00 NOON -- Convention Center, Room 15

ORGANIZER: Karen P. DePauw, Washington State University
SPEAKERS:

"Research on Physical Education and Sport for Disabled Individuals: United States Perspective" -- Karen P. DePauw, Washington State University, Pullman

"Research on Physical Education and Sport for Disabled Individuals: Germany, Austria, Switzerland, Netherlands" -- Gudrun Doll-Tepper, Free University of Berlin, West Germany

"Research on Physical Education and Sport for Disabled Individuals: Belgium, France, Spain" -- Jean Claude DePotter, Free University of Brussels, Belgium

"Research on Physical Education and Sport for Disabled Individuals in Canada" -- C. Simard, D. Drouin and A.E. Wall, McGill and Laval Universities, Montreal and Quebec Cities, Quebec, Canada

RESEARCH CONSORTIUM FREE PAPERS: EXERCISE PHYSIOLOGY

10:45 a.m. - 12:00 noon -- Convention Center, Room 13
PRESIDER: B. Evans, Ball State University, Muncie, Indiana

10:45 - 11:00 a.m. -- "Menstrual Irregularities in Adolescent Runners" -- Susan M. Moen, Dallas Baptist University, Texas, Charlotte F. Sanborn, Nancy DiMarco and Vic Ben-Ezra, Texas Woman's University, Denton, and Sydney L. Bonnick, Cooper Clinic of the Aerobics Center, Dallas, Texas

11:00 - 11:15 a.m. -- "A Longitudinal Study on the Effects of Exercise on Motor Performance of Previously Sedentary Older Women" -- Roberta E. Rikli, California State University, Fullerton, and Diane J. Edwards, Saddleback College Emeritus Institute, Mission Viejo, California

11:15 - 11:30 a.m. -- "Aerobic Circuit Training Improves Cardiorespiratory Endurance, Metabolic Control and Lipid Profiles in Type I Adolescent Diabetics" -- Patricia E. Mosher, University of Tennessee, Chattanooga, Arlette C. Perry, Mark S. Nash, James L. Devitt, Gail S. Steiner, Ilka Lowenstyn and Arthur LaPerriere, University of Miami, Florida

11:30 - 11:45 a.m. -- "The Relationship of Body Fat Distribution to Blood Lipids in Adult Males" -- John M. Jakicic, Joseph E. Donnelly and Susan Gunderson, Kearney State College, Nebraska

11:45 - 12:00 noon -- "Thermic Effects of Food and Exercise in Trained and Untrained College Women" -- James H. Johnson and Ann M. Foley, Smith College, Northampton, Massachusetts

SYMPOSIUM: SPORT PSYCHOLOGY AND ATHLETIC INJURY

Assisting athletes in recovering both physically and psychologically from athletic injury is of primary concern to athletes, athletic trainers, coaches, and sport psychologists. The purpose of this symposium was to consolidate the current theoretical and research understandings of the psychosocial environment surrounding athletic injuries, and to examine the use of sport psychology in enhancing injury recovery. Three major concerns are addressed with regard to current knowledge: psychosocial factors related to the occurrence of injury, the cognitive and emotional responses of athletes to injury, and the facilitation of physical and psychological recovery. Recent findings are significant in that they have potential to enhance injury prevention efforts and possess implications for the selection of appropriate strategies in enhancing recovery once injury has occurred.

PSYCHOSOCIAL FACTORS RELATED TO THE OCCURRENCE OF ATHLETIC INJURIES. Diane M. Wiese, University of Minnesota.

Understanding how injuries occur remains one of the major concerns of sportsmedicine personnel. Some evidence exists which indicates that psychosocial factors may play a role in the occurrence of sports injuries. These factors include risk taking behavior, anxiety, major and minor life stress, and personality traits. Recent theoretical models (Andersen & Williams, 1988; Wiese & Weiss, 1987) have been proposed to increase our understanding of the psychosocial environment as it relates to predisposition toward injury and response to injury. Other investigators have suggested that social support systems play a major role in the psychosocial injury environment (Hardy et al., 1987). It has been proposed that disruption of these systems may be related to injury occurrence, while the presence of a supportive social network may enhance the recovery process. These models have implications for the prediction and prevention of athletic injury, as well as for enhancing recovery.

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COGNITIVE AND EMOTIONAL RESPONSES OF ATHLETES TO INJURY. Aynsley M. Smith, Mayo Clinic Sports Medicine Program.

In order to understand the psychological consequences of injury, one must first examine the psychological benefits of exercise and sport participation often lost with injury. Some of these benefits include self-esteem, stress management, social support, and weight control. Based on both the loss of benefits derived from participation and anxiety surrounding the actual injury, recent evidence indicates that athletes experience a variety of cognitive and emotional responses to athletic injury (Chan, 1988; Smith, 1988; Weiss & Troxel, 1986). Some of the responses observed in injured athletes include depression, anger, anxiety, and tension. It appears from recent study that the severity of the injury and the athlete's perceived rate of recovery influence the emotional response experienced. An evaluation of these lost benefits as well as the cognitive and emotional responses experienced by athletes must be systematically examined before appropriate psychological interventions can be prescribed.

FACILITATION OF PHYSICAL AND PSYCHOLOGICAL RECOVERY FROM ATHLETIC INJURY. Eric E. LaMott, Boise State University.

Based on an understanding of the psychosocial circumstances surrounding athletic injury, as well as an understanding of the cognitive and emotional responses of athletes to injury, the evaluation of psychological intervention strategies must be examined in terms of their effectiveness in enhancing recovery. Research on this topic is in the initial stages, with few systematic studies conducted to date on the use of psychological skills such as goal-setting, relaxation, and imagery in facilitating the rehabilitation process (LaMott et al., 1989; Smith, 1980). Limited evidence has indicated that athletes find psychological skills intervention programs as positive and beneficial. Strategies for enhancing the injury situation include the measurement of predisposing factors, emotional responses, the use of preseason and post-injury screening questionnaires, and in-depth interviews. Possible intervention strategies were proposed, with important emphasis placed on the need for systematic investigation in this area.

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SYMPOSIUM: PHYSIOLOGICAL CONSIDERATIONS WHEN TRAINING THE CHILD ATHLETE

This symposium is designed to deliver to theorists and practitioners information which is critical to the safe and effective athletic training of children. Ways in which the child responds to exercise and training will be elucidated. Specifically, cardiorespiratory adaptations to exercise stress and physical training will be addressed with emphasis upon those that vary from such changes reported in adults. A description of structure and function of muscle tissue in children, including energy substrate utilization, will be provided and ways in which these parameters alter with age will be examined. Special considerations to assure safe and effective training for children will be presented with elaboration of limitations imposed by immature physiologic systems. The child's limited ability to perform anaerobic work and to manage thermal stress will be awarded special attention. The symposium is significant in that it will disseminate information from a growing scientific pool to those who can best apply it.

CARDIORESPIRATORY RESPONSES TO EXERCISE IN THE CHILD. Michael G. Maksud, Oregon State University.

The scientific literature concerning ways in which pre- and early postpubescent children respond to exercise will be reviewed with special attention to cardiorespiratory alterations during submaximal and peak intensity work. Such parameters as heart rate, cardiac output, respiratory rate, ventilation, pulmonary diffusing capacity and oxygen consumption will be discussed. The efficiency of respiration and circulation observed in the exercising child is to be described. How children's cardiorespiratory function during exercise differs from that of adults will receive special attention.

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CARDIORESPIRATORY RESPONSES TO TRAINING IN THE CHILD. Paul Vaccaro, University of Maryland.

Existing information defining the pre-and early postpubescent child's cardiorespiratory adaptations to exercise training will be discussed with special attention devoted to such parameters as resting and exercise heart rate, cardiac stroke volume, cardiac output, respiratory rate, tidal volume and oxygen consumption. Furthermore, training effects on heart and lung morphology and on static and dynamic lung volumes will be presented. Differences in response to training between adults and children will be emphasized. The physiological effectiveness of various types of exercise training at different phases of growth and development is to be discussed. Potential effects of adaptation to training on childhood athletic performance will be presented.

MUSCLE TISSUE - UNIQUE EXERCISE AND TRAINING RESPONSES IN THE CHILD. Christian W. Zauner, Oregon State University.

The changing structure and function of muscle tissue will be traced from birth through early adulthood. Alterations with age in muscle fiber distribution and muscle metabolism will receive major attention as will the potential for the child's muscle system to respond to strength and endurance training. Ways by which muscle tissue function may govern performance, and the types of exercise training that therefore appear most appropriate for the child will be provided. Effects of specific training load upon muscle tissue will be contrasted against the genetic role. Some discussion will be directed toward the use of muscle fiber type distribution as a means to assign young athletes to a sport discipline most likely to assure success.

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SPECIAL CONSIDERATIONS WHEN TRAINING CHILDREN. Emily M. Haymes, Florida State University.

The fact that in certain ways children respond differently to training than do adults will be reemphasized. That children have different needs than adult counterparts in regard to fluid replacement is to receive extensive attention as will their variance from the adult in terms of responses to heat and cold stress. Limits imposed by endurance and strength will be discussed. How exercise and training intensities and performance expectations are influenced by growth and maturation is to be presented. Finally, general recommendations for safe and effective children's athletic training programs will be provided.

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SYMPOSIUM: DESCRIPTIVE DANCE RESEARCH

To answer the question of what is now, the descriptive researcher deals with the present through an analysis of data gathered through interviews, questionnaires, and observations. The purpose of this symposia is to explore the methodologies and review recent research in (1) Laban movement analysis, (2) dance survey research and (3) process-product dance research. The methodology of each will be described and will include the pros and cons of the particular methodology, followed by a review of recent research which utilizes the specific methodology, and finally future trends will be discussed.

CURRENT APPLICATIONS OF LABAN MOVEMENT ANALYSIS IN DANCE RESEARCH.

Billie Lepczyk, Virginia Polytechnic Institute and State University.

Laban movement analysis serves as a methodology for dance research. Rudolf Laban (1879-1958) defined a conceptual framework for viewing all kinds of movement and divised methods of differentiating them through terminology and notation. This methodology has evolved and been further developed by practitioners of the system. Laban movement analysis consists of three specific but related perspectives. These are: effort/shape, a framework for viewing the dynamic qualities of movement; choreutics, a framework for viewing the harmonic relationships of pathways and spatial tensions; and Labanotation, the documentation of the detailed structure of movement so that it can be recreated from the notation. The presentation will include a review of the current scholarship of Brennan, Lepczyk, Maletic, Preston-Dunlop, and Venable.

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DANCE SURVEY RESEARCH. Lynnette Y. Overby, Howard University.

This survey as a methodological tool for descriptive dance research has been used to document many aspects of dance. This tool has been used to describe cultural differences, dance programs in the public schools, teacher behaviors in the studio and audience reactions to a performance. This presentation will include the following: (1) information on building a valid and reliable survey instrument; (2) problems associated with survey research (i.e., reactivity and obtrusiveness); (3) a review of recent dance survey research (Hanna, Overby, Pappalardo); and (4) triangulation as a research method which combines survey research with qualitative research methods.

PROCESS-PRODUCT DANCE RESEARCH. Sandra Minton, University of Northern Colorado.

This presentation will include a survey of process-product and descriptive research done to assess which behaviors occur in dance classrooms for both teachers and students. A review of recent research of dance and physical education classroom behaviors will also be discussed. A brief analysis will be made of a study done Fall 1988 using the physical education teacher assessment instrument on 15 modern and jazz dance classes. This instrument, which provides for quantitative assessment of various instructional and management behaviors of teachers, engaged student time and student management styles, and was developed in a videotape format by Drs. Allen Phillips, Cynthia Carlisle, and Jeff Steffen at the University of Northern Colorado. Future trends of process-product research will also be discussed.

SYMPOSIUM

DRUG FREE SCHOOLS & COMMUNITIES: EVALUATION OF SELECTED PROGRAMS

Problems associated with the use and misuse of legal and illegal drugs constitute a major threat to public health. Drug abuse levels are believed to be higher in the United States than any other industrialized country in the world. Data from the National Institute on Drug Abuse studies of high school students indicate the use of legal and illegal drugs by American students remains at one of the highest levels in history. The severity of the problem led former President Reagan to declare a "War on Drugs" and prompted the U.S. Congress to enact legislation (Drug Free Schools and Community Act of 1986) which provided funding through the U.S. Department of Education for drug education efforts. This symposium presents evaluations of three innovative programs funded under this legislation. All three deal with drug education for young people. In addition to a teacher led program, the symposium features a take home parent-child program and a program led by law enforcement officers. The results from these programs should provide help for those looking for effective ways of providing drug education.

EVALUATION OF A PROGRAM INVOLVING LAW ENFORCEMENT OFFICERS AS DRUG EDUCATORS.

Susan Rausch and Michael Young, University of Arkansas.

This paper presents results from the field testing of the "Be A Winner" curriculum. This is a drug education curriculum for fifth and sixth grade students which involves the presentation of material in the students' classroom by uniformed law enforcement officers. Officers from across the state attended a one week training workshop to learn how to implement the curriculum. Following the training, each officer implemented the program in at least one elementary school in his/her community. In each school, classes were assigned to either experimental or delayed control conditions. Both groups were surveyed before after curriculum implementation. The evaluation focused on the effects of the curriculum on student self-esteem, use and expected use of various drugs and attitudes toward law enforcement officers. The program has been well received by students, parents and school officials. Preliminary results indicated that the program had a positive impact on students. The 1989-90 school year includes more schools and students participating in both the educational program and the project evaluation. Data from the fall semester of this second year implementation will also be included in the presentation.

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A CORRESPONDENCE-BASED DRUG PREVENTION PROGRAM FOR CHILDREN

Chudley E. Werch, University of North Florida; Michael Young, Margo Clark, Carol Garrett, Sarah Hooks and Carolyn Kersten, University of Arkansas.

"Keep A Clear Mind" (KACM) is a correspondence-based drug prevention program for 4th through 6th grade students. It consists of a series of four take-home lessons designed to promote parent-child discussion about drugs to help children develop specific skills to refuse and avoid "gateway" drug use. The purpose of this study was to determine if the KACM program positively impacted child and parent drug beliefs and behavior. Twenty 4th, 5th and 6th grade classes from six elementary schools in two school districts were randomly assigned to either an experimental or a waiting list control group. Teacher responses (90% return rate) to questionnaire items collected at the conclusion of the program showed that the majority of teachers felt that: 1) the parental involvement component of KACM was important for effective drug education (94%), 2) KACM improved communication about drug prevention between children and parents (72%), 3) KACM developed specific student skills to refuse or avoid drug use (61%),and 4) they would recommend KACM to other teachers (100%). Preliminary analysis of data from students also indicate a positive impact. These data suggest that this type program may be a cost-effective strategy for involving parents in drug education.

DRUG FREE SCHOOLS AND COMMUNITIES PROJECTS AT BOWLING GREEN STATE UNIVERSITY.

Molly Laflin, David Weiss and Clay Williams, Bowling Green State University.

Bowling Green State University has received three Department of Education Drug Free Schools and Communities Grants. Grant monies have funded prevention training for area teachers and have allowed us to host regional Drug Free Ohio Conferences. This presentation will address some of our funded research efforts. These have included: the development of a 40 item drug attitude scale (0=92), incidence and prevalence of adolescent drug use, the influence of social desirability on teacher knowledge and attitudes toward drug use and attitudes toward drug use as an intervening variable in the relationship between self-esteem and actual adolescent drug use patterns.

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SYMPOSIUM: AN INTEGRATED APPROACH TO THE STUDY OF COGNITIVE-PSYCHOLOGICAL VARIABLES WHICH INFLUENCE ACTUAL AND PERCEIVED PERFORMANCE OUTCOMES AMONG ADOLESCENT RIFLE SHOOTERS.

The major objective of this symposium is to demonstrate both the value of, and need for, integrated research which employs meaningful tasks in "real-world" sport settings. Research methodologies from the areas of motor learning and sport psychology were combined for the specific purpose of investigating the relationship among self-efficacy, psychological arousal and attention in relation to both the type of performance situation (practice vs. competition) and level of task complexity. Adolescent rifle-shooters served as the subject sample. As a reflection of the integrated research approach adopted, dual presentations will be given by one of the motor learning and sport psychology representatives in each of the three sections of the symposium. The first section will be devoted to a discussion of the underlying research hypotheses to be tested and the rationale for integrating the two research areas. A description of the instruments and methodologies used to investigate the research questions and the major findings obtained will be the focus of the second section. In the final section, the practical implications of the research findings will be disussed and recommendations for future research presented.

WHY HAS THERE BEEN SO LITTLE RESEARCH INTEGRATING SPORT PSYCHOLOGY AND MOTOR LEARNING? Debra J. Rose, Oregon State University and Maureen Weiss, University of Oregon.

The first dual presentation will begin with the identification of factors which have limited the amount of integrated research conducted and discussion of the steps necessary to bridge the integration gap. Unlike many research endeavors which are initiated by the researcher, the present project was developed in response to a request by a practitioner who was interested in developing a better understanding of how the relationship between certain cognitive-psychological variables influenced the type of performance goals established by the athlete and their perception of the outcome. In order to adequately address the type of questions asked by the practitioner, integration of the motor learning and sport psychology research areas was needed. A discussion of the respective roles to be played by the motor learning theorists and sport psychologists in the research project developed and the specific hypotheses to be tested will conclude the first section.

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MOTOR LEARNING AND SPORT PSYCHOLOGY COMBINE TO STUDY THE SPORT OF RIFLESHOOTING: DESCRIBING THE RESEARCH PROJECT.

Vicki Ebbeck, University of Oregon and Susan Hobbel, Oregon State University.

A group of adolescents attending a Junior Olympic State Rifleshooting camp conducted over a three day period served as the subject sample in the present study. Several psychological instruments were administered at selected intervals during a three-position rifle event which was conducted under practice and competition conditions. These instruments were designed to measure levels of cognitive and somatic anxiety, self-efficacy, attributions and causal dimensions, and affective reactions to performance outcomes. In combination, the dual-task methodology was used to measure the distribution of attention in the prone, kneeling and standing positions of the event. Given that these three positions demanded varying degrees of postural control, the influence of task complexity could also be studied from both a cognitive and psychological perspective. The major research findings and emerging relationships identified between the variables measured will be discussed by the authors. The attentional style profile developed for each shooter as measured by the TAIS will also be compared to the profile established using the dual-task methodology.

A PRACTICAL REVIEW OF RESEARCH FINDINGS.

Maureen Weiss, University of Oregon and Debra J. Rose, Oregon State University.

The focus of the final dual presentation will be to discuss the major research findings from a practical perspective. The motor learning researcher will interpret the sport psychology-related findings and discuss their implications for future research in the area of motor learning. Similarly, the sport psychologist will interpret and then discuss the motor learning results as they impact future research in the area of sport psychology. The potential for direct application by shooting sport coaches of the knowledge derived from the research project will then be discussed. Finally, recommendations for conducting integrated research in applied settings will be presented.

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SYMPOSIUM: RESEARCH ON PHYSICAL EDUCATION AND SPORT FOR DISABLED INDIVIDUALS: INTERNATIONAL PERSPECTIVES

Research on physical activity (e.g. physical education, sport) for disabled individuals has increased tremendously over the past 20 years. Much has been published in the native language of the researcher and presented at international symposia. To this point in time no systmatic review or synthesis of the research has been undertaken. Although there are similarities in research findings common to Europe and North America, differences do exist which are unique to the specific countries involved. In this symposium, research findings from Canada and Western Europe will be provided in addition to that found in the U.S. literature.

RESEARCH ON PHYSICAL EDUCATION AND SPORT FOR DISABLED INDIVIDUALS: UNITED STATES PERSPECTIVE. Karen P. DePauw, Washington State University

Physical activity and sport opportunities for individuals with disabilities have increased substantially over the past 40+ years. Concomitantly, research on teaching and coaching disabled individuals evolved. Prior to the 1970s, the research in North American tended to be descriptive in nature and focused upon the effects of fitness/exercise or described the growth and development of disabled persons. Sport research since the 1970s has become sport specific, disability specific, discipline-oriented, and performance enhancing. Relative to adapted physical education, research has focused upon effective teaching and learning of disabled individuals, effect of least restrictive environment/mainstreaming, techniques for assessing performance or fitness, and effective programs/programming. Among others, research supports: (a) similarity more than difference, (b) effectiveness of instruction/training, (c) positive changed in attitude, (d) benefits of integration, and (e) improvements in performance.

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RESEARCH ON PHYSICAL EDUCATION AND SPORT FOR DISABLED INDIVIDUALS: GERMANY, AUSTRIA, SWITZERLAND, NETHERLANDS.

Dr. Gudrun Doll-Tepper, Free University of Berlin, West Germany

During the past 20 years research on physical education and sport for disabled individuals in German speaking countries was mainly done in two scientific areas: (a) medicine/sports medicine/rehabilitation and (b) sport pedagogy. Most of the medical research studies focused on rehabilitative/therapeutic effects and values of physical activity and sports for different kinds of disability groups. In the area of sport pedagogy, as part of the educational/movement science, emphasis was put on the following: (a) the process of effective teaching and learning, including the development of new approaches and application to individuals with a variety of impairments and (b) the development of new assessment tools in order to analyze the motor behavior and the effects/efficiency of movement-based therapuetic interventions or sport programs. In general, the trends in the German literature are towards more interdisciplinary research and the inclusion of new areas (e.g. architecture).

RESEARCH ON PHYSICAL EDUCATION AND SPORT FOR DISABLED INDIVIDUALS: BELGIUM, FRANCE, SPAIN.

Jean Claude DePotter, Free University of Brussels, Belgium

In France and Spain "Action Research" is still emphasized and observations of psychological and social benefits have the most studies. Psychomotor learning programs have been applied to disabled individuals and motor aptitudes are described supporting differences more than similarities between disabled and non disabled persons. Results mainly concern the improvement of self-concept and social interaction. In Belgium, because of the varied background and expertise of providers physical activities have been studied in terms of (a) teaching and learning and (b) effects upon fitness. Psychomotor therapy programs for psychiatric patients and medical benefits of physical activity for health impaired persons have been studied extensively in Belgium. In general, coordinated and collaborative research is growing in different areas, with different strategies and among different institutions. Principles of psychology, physiology, biomechancis and pedagogy are applied to teaching and coaching individuals for remediation, education or leisure.

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RESEARCH ON PHYSICAL EDUCATION AND SPORT FOR DISABLED INDIVIDUALS IN CANADA.

C. Simard, D. Drouin and A. E. Wall, Physical Education Departments, McGill and Laval Universities. Montreal and Quebec Cities, Quebec, Canada.

The concept of adapted physical activity has been evolving over the past two decades. Adapted physical activity has an increasing role in the process of rehabilitation as a mean to educate, to normalize, to encourage and to stimulate physical and mental achievements. To reach these goals, Canadian research trends have emerged in both fundamental and applied researches in adapted physical activities. The purpose of this paper is to overview researches in both tendencies and to emphasize those areas which seem to receive more attention. The presentation is a contribution to bring evidence about the status of research in adapted physical activity and to predict research trends for the next decade.

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PHYSICAL FITNESS AS A FUNCTION OF GENDER AND FITNESS ACTIVITY LEVEL AMONG COLLEGE FRESHMAN MEN AND WOMEN.

Daniel D. Adame, Emory University; Thomas C. Johnson, Emory University; Steven P. Cole, Emory University.

The declining level of physical fitness among the nation's youth continues to be disturbing. Recent studies have shown that, among other apparent health related problems, young people are less fit and more obese than those surveyed 15-20 years ago (The National Children and Youth Fitness Study, 1985; The National Children and Youth Fitness Study II, 1987). The purpose of this study was to assess the physical fitness of college freshmen as a function of gender and fitness activity level. Four hundred and forty-nine freshman students enrolled in a personal health course were asked, as part of a unit of study on physical fitness, to participate in the Hall (1986) Physical Fitness Profile. The test included measures of heart rate, blood pressure, weight, height, muscle strength, percent body fat, flexibility, muscle endurance and aerobic power. Subjects also reported their weekly physical exercise level on a 9 point scale ranging from no regular exercise to 10 or more hours per week. A chi-square test for independence demonstrated a statistically significant association between gender and level of activity, $X^2(2) = 46.59$, $\underline{p} < .001$. Almost twice as many females (36.3%) as males (20.6%) did not exercise. Fifty-one percent of the males reported they exercised less than four hours per week. Fifty-four percent of the females indicated they exercised less than two hours per week. Three times as many males (38.6%) as females (13.3%) tended to exercise over 10 hours per week. An analysis of variance revealed that, overall, males ($\underline{M} = 61.76$, $\underline{SD} = 11.83$) were more physically fit than females ($\underline{M} = 54.23$, $\underline{SD} = 13.38$), $\underline{F}(1,443) = 18.14$, $\underline{p} < .001$ and subjects who reported higher levels of activity tended to be more physically fit, $\underline{F}(2,443) = 20.02$, $\underline{p} < .001$. However, there was a statistically significant interaction between gender and fitness activity level $\underline{F}(2,443) = 6.40$, $\underline{p} < .01$. At minimal (less than 2 hours per week) to moderate (2-4 hours per week) levels of exercise, males were more fit than females. Only at increased levels of exercise (5 or more hours per week) were females as fit as males. In summary, males tended to be more fit than females and spent more time on physical activity. Only with higher levels of physical activity did females achieve comparable levels of physical fitness compared to males.

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WHOLE BODY EQUIVALENT RESISTANCE AS A PREDICTOR OF FATFREE VOLUME.

Laura Adams, Charles R.C. Marks, Michele Gallo, Kimberly Bolen, Alma George. Oakland University.

Twentyfive subjects [$\bar{X} \pm$ SD, % Fat= 18.8 ± 6.7] between the age of 18-35 were studied to determine if treating the body as an equivalent resistance circuit (R_{eq}) of two parallel circuits-arms and legs-in series with the trunk could improve the prediction of fatfree volume (FFV) over the right wrist to right ankle resistance (R_{aw}). Resistance was measured with a tetrapolar bioresistance meter on the arms (R_{La}, R_{ra}), legs (R_{LL}, R_{rL}), trunk (R_t), and right wrist to right ankle. R_{eq} was calculated as

$$R_{eq} = [\ R_{La}{}^{-1} + R_{ra}{}^{-1}\ ]^{-1} + R_t + [\ R_{LL}{}^{-1} + R_{rL}{}^{-1}\ ]^{-1}$$

Stature (S) was measured with a moveable anthropometer. FFV' was calculated as

$$FFV' = S^2/R_{eq} \text{ and } S^2/R_{aw}.$$

Hydrodensitometry was used to estimate fatfree mass (FFM), and FFV was caculated as FFM/1.1kg/Liter. Results are reported below:

Regression of S^2/R_{eq} and S^2/R_{aw} on FFV

FFV'	r	SEE (Liter)
S^2/R_{eq}	.84	4.33
S^2/R_{aw}	.82	4.65

It is concluded that the equivalent resistance model holds, but does not markedly improve the prediction of FFV over the wrist to ankle resistance.

Supported in part by the Meadow Brook Health Enhancement Institute.

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VALIDATION OF HYDROSTATIC WEIGHING WITHOUT HEAD SUBMERSION ON FEMALE, COLLEGIATE AGE, ATHLETES.

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Measurements of 27 physically active, collegiate age, white, females were used to cross validate a previously derived equation of hydrostatic weighing (HW) at total lung capacity without head submersion (TLCA). The criterion measure of body composition was assessed at residual volume (RV). HW at TLCA was obtained following the procedure of Donnelly, Brown, Israel, Sintek, Obrien & Caslavka, (1988). Vital capacity (VC) was determined on land (VCL) and with the subject submerged in water up to the neck (VCW). RV was estimated by multiplying the determined VCL by the constant 0.28 (Wilmore, 1969). Two different methods for estimating total lung capacity were included and analyzed. The first estimate, TLCAW, was determined by adding the estimated RV to VCW. The second estimate, TLCAL, was determined by summing the recorded VCL and the estimated residual volume. Statistically significant differences ($p > 0.001$) were found between BDs and subsequently percent body fat (%BF) when HW at RV was compared to the estimated HWs at TLCAL (*M* diff. = 0.0114 g/ml; 4.66%) and TLCAW (*M* diff. = 0.0052 g/ml; 2.19%). The difference, however, for TLCAW was considered practically insignificant. Correlation coefficients between the criterion and predicted BDs were for TLCAL, $r = 0.756$ and for TLCAW, $r = 0.744$. The SEE and E were 0.002 g/ml and 0.00303 for TLCAL and 0.002 g/ml and 0.00214 for TLCAW, respectively. The findings of this study suggest the procedure of HW at TLCA described by Donnelly, et al. (1988) is valid when applied to this population. Additionally, the regression equation which predicts BD (HW at RV) from BD (HW at TLCA) appears more accurate when TLCAW represented the total lung capacity applied to the formula for computing BD.

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THE EFFECTIVENESS OF A DRUG AND ALCOHOL EDUCATION CURRICULAR UNIT ON SIXTH GRADERS' ATTITUDE AND BEHAVIOR TOWARD DRUG USE.

Matthew Adeyanju, Linda Cooper, Diane McDermott, University of Kansas; Ray Tricker, Oregon State University.

The purpose of this study was to analyze the sixth grade Meeks-Heit Drug and Alcohol education curriculum in order to determine the effectiveness of this program on students' attitudes toward alcohol use. A secondary purpose of this study was to analyze the effectiveness of this drug curriculum on students' alcohol behavior. The study sample consisted of 120 sixth grade students. The sixty experimental subjects were from the Shawnee Mission School District, while the sixty control group subjects were from Lee's Summit School District. The experimental group was given the IOX "Beliefs About Alcohol Use" questionnaire as a pre-test before the three week Meeks-Heit Drug and Alcohol intervention program. The IOX questionnaire was regiven as a post-test and also administered twice to the 60 students in the control group with no intervention program. Data were analyzed using descriptive statistics and by a t-test to determine any significant differences between the two groups in alcohol attitudes and behavior. The results of the data at the .05 level of significance indicated no significant differences between the experimental and control groups in alcohol attitudes. The experimental group indicated no significant difference in alcohol behaviors from pre- to post-tests. The control group showed a significant difference in alcohol behavior in the negative direction. The pre-test mean scores for behavior were high indicating anti-alcohol behaviors, therefore a stable mean score in the experimental group's post-test indicated that negative alcohol behaviors were not developing. The study implied a need to reevaluate the program under the following conditions: 1) schedule the program over a longer duration of time to allow integration of the skills necessary to off-set the variables of drug use, 2) schedule the program at the first part of the school year with booster sessions during the second semester, and 3) present the sessions at the first part of the school day to smaller class sizes.

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PREDICTION OF PARTICIPATION IN PHYSICAL EXERCISE UTILIZING PERCEIVED SUSCEPTIBILITY, BENEFITS, BARRIERS, SOCIAL INFLUENCES, CUES TO ACTION, PHYSICAL SELF-EFFICACY, AND HEALTH LOCUS OF CONTROL.

Dean F. Anderson and Charles M. Cychosz, Iowa State University

This investigation examined the relationship between individual perceptions and beliefs with participation in physical exercise. While the Health Belief Model inventory (HBM) has been found to be an adequate predictor of exercise within a college student sample, this study sought to examine its utility with an adult worksite population. In this case, the HBM inventory in combination with the Physical Self-Efficacy Scale (PSES) (Ryckman et al., 1982) and the Health Locus of Control Scale (HLC) (Wallstom et al., 1978) were utilized. Data were collected from 66 of 95 (70%) male employees from the Iowa Department of Transportation Motor Enforcement Division who received their annual physical examination and stress test at the University Fitness Clinic. Self-report participation data included frequency, duration, and intensity. Subjects categorized as active met the minimum criteria of three, 20 minute sessions per week with a reported intensity which was at least "sweating, breathing somewhat heavily." The 40-item HBM inventory represented a hypothetical structure consisting of five factors labeled Susceptibility, Benefits, Barriers, Social Influence, and Cues to Action. Alpha coefficients were .80 or higher for factor scores with the exception of the .68 value for the four item, cues factor. Alpha coefficents for the PSES and HLC were .75 and .62 respectively. Discriminant analysis was used to test the ability of HBM, PSES, and HLC to predict participation in fitness activities. Using all 5 HBM factors, PSES, and HLC, 74% of the cases were correctly classified. The canonical discriminant function in this analysis displayed canonical correlation of .439 and a Wilks' Lamba =.807, Chi square value of 12.76 ($p=.08$). These findings suggest that the attitudinal measures were marginally effective predictors of exercise participation. These findings were in contrast with the effectiveness of these measures in previous work. The HBM components reflect a decision-making model which has been an effective predictor with other groups. In this case, characteristics of the occupation may impose situational limits on the effectiveness of the decision-making model. Further research is suggested to explore the relationship of these occupational factors with the individual's decision-making process.

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EFFECT OF A WEIGHT TRAINING CLASS ON THE PHYSICAL SELF-EFFICACY OF MALE AND FEMALE COLLEGE STUDENTS.

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This investigation examined changes in physical self-efficacy among male and female college students enrolled in a 16-week weight-training class or first aid class. Eighty-three students from beginning weight training (48 males and 35 females) and 79 students from first aid (19 males and 60 females) responded to the Physical Self-Efficacy Scale (PSES) developed by Ryckman, Robins, Thornton, and Cantrell (1982) the first and last week of the semester. The PSES consists of 22 items scored on a six-point Likert scale with (1) indicating strongly agree to (6) indicating strongly disagree. The PSES consists of two subscales, Perceived Physical Ability (PPA) subscale which measures perception of physical ability consists of 10 items and Physical Self-Presentation Confidence (PSPC) subscale consists of 12 items. Data for each dependent measure, PPA and PSPC were analyzed by a 2x2x2 (ClassXGenderXTime) ANOVA with repeated measures on the last factor. Analysis of PPA scores revealed significant main effects for class, F (1,158) = 4.43, p = .04 and gender, F (1,158) = 22.5, p =.001 as well as a significant class-by-gender interaction, F (1,158) = 9.12 p = .003. No significant class-by-times, gender-by-times, or class-by-gender-by times interactions were revealed. Analysis of PSPC scores also revealed significant main effects for class, F (1,158) = 4.43, p = .04 and gender, F (1,158) = 13.01, p = .001, as well as a significant class-by-gender interaction, F (1,158) = 5.22, p = .03. Once again, no interactions using times as a variable were significant. Although significant class and gender main effects were revealed for both PPA and PSPC scores, close examination of means for class-by-gender-by-times suggests that these significant effects may in a large part be the result of very low scores on both pretest and post-test for females in the first aid class. Interestingly, failure to reveal any significant times interactions seems to indicate that changes in PPA and PSPC from pretest to post-test were not different across groups. Thus, participation in weight training class was not effective in changing subject's PPA or PSPC scores. Possibly, the PPA and PSPC subscales are too general or not specific enough to measure the narrow benefits or outcomes in physical ability affected by the weight training program. Many researchers, Bandura (1977), Ewart, Stewart, Gillilan, and Keleman (1986), Fox (1988) as well as McAuley and Gill (1983) have argued that self-efficacy and physical self-efficacy expectations can be very situational specific and that they tend not be be general or global in nature.

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A COMPARISON OF THE FUNCTIONAL LEVEL OF PHYSICAL THERAPY PATIENTS DISCHARGED FROM A SKILLED NURSING CARE FACILITY WITH THEIR LEVEL OF INDEPENDENCE AT HOME: John S. Anderson, East Tennessee State University; Marie Jackson, P.T.

The purpose of the study was to compare the functional level of nursing home physical therapy patients at the time of discharge from a skilled care facility to their post-discharge level of independence at home. The subjects (N=30) included in the study were documented as independent in gait, transfers, and/or activities of daily living (ADL) prior to discharge from an accredited skilled care facility. All subjects were interviewed no sooner than one month post-discharge at their homes, and their functional status was rated using a questionnaire based on the Barthel Index (1965) and the Discharge Follow-up Form (1981). All post-discharge interviews were conducted by the principle investigator, a physical therapist. The subject's ability to perform functional ADL was rated by the investigator according to the subject's response to the questions. Questions were categorized as 1. personal ADL, 2. mobility ADL, and 3. skilled ADL. Each subject was rated on each item as independent, needs assistance, unable to perform. A rating scale was developed using 100 points to indicate full independence. The results of the study indicated that at one month post-discharge, 63% of the subjects were fully independent in personal ADL; 27% were fully independent in mobility ADL, and 23% in skilled ADL. Only 10% of the subjects were fully independent in all three categories. When analyzed according to age, the results indicated that there was no correlation (r=.27) between age and level of independence. When analyzed according to sex, a significant difference (p<.05) was found in the personal ADL category. No gender related differences were found in either the mobility or skilled ADL categories. In conclusion, it appears that the subject's functional level of ADL was either over-assessed prior to discharge, or that functional ability deteriorated rapidly post-discharge. It also appeared that most of the subjects could have benefited from continued physical therapy intervention on an outpatient basis or a home health basis post-discharge.

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THE ACCURACY OF SELF-ASSESSED HEART RATES AND TIME IN TARGET HEART RATE RANGES OF PARTICIPANTS IN AEROBIC DANCE:

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The purpose of the study was to determine if participants in aerobic dance could (a) accurately assess their own heart rates (HR) by carotid artery or brachial artery palpation, and (b) maintain heart rates within the calculated target heart rate ranges during the activity. Subjects (N=26) were selected at random from 65 volunteers (ages=19-45) in 2 aerobic dance classes in the general education program at East Tennessee State Univeristy. The heart rates of the subjects were monitored by telemetry (TMHR) on a minute-by-minute basis during participation in an aerobic dance class and compared with the subject's self-assessed heart rates (SAHR), which were calculated at the end of each third minute during the aerobic routine. The aerobic routines were designed so that exercise intensity was increased at the end of every third minute during the routine. TMHRs were also used to determine the percentage of time during the aerobic routines that heart rates were maintained within the target ranges. Data was analyzed using one-way repeated measures ANOVA. Results indicated statistically significant differences ($p<.02$) existed between SAHRs and TMHRs during the last 3 minutes of the routines. Trend analysis indicated a decreased accuracy of SAHRs as exercise intensity increased. Heart rates of the study sample were within the target ranges for 63% of the time during the routines, with individual differences ranging from 1% to 97%. Mean time above and below target HR ranges were 18% and 19% respectively. The results suggest that SAHRs are relatively accurate except during the latter and more strenuous minutes of aerobic dance routines. The data, however, also raises questions of the participant's compliance to target HR ranges during aerobic dance routines.

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COMPARISON OF TWO METHODS OF TRAINING SPECIAL OLYMPICS VOLUNTEERS TO TEACH AND COACH BOWLING. Cindy L. Albright, Arkansas State University.

Two methods of training Special Olympics volunteers in coaching and providing developmental bowling skills to mentally retarded individuals were developed and evaluated in this study. Twenty-six subjects attended an inservice training workshop held at Arkansas State University in Jonesboro, Arkansas. Subjects were randomly placed in one of two training methods. One method involved a 4-hr intensive practicum setting, while the other method involved a 3-hr session which required viewing two videotape modules and participating in a practicum setting. Thirteen subjects randomly selected from an introductory special education class served as subjects for the control group and received no instructional training. An evaluation instrument consisting of a 45-item multiple choice test was developed to assess the subjects' ($\underline{N}$=39) knowledge in teaching bowling skills to mentally retarded individuals. Pretest and posttest data were collected from all subjects. A one-way analysis of covariance was used to analyze the data on the adjusted posttest scores on the knowledge test. Results of the analyzed data indicated that there was a significant difference, $\underline{F}(2,35) = 63.71$, $\underline{p} < .001$, among the adjusted posttest means on the knowledge test scores. The Tukey A post-hoc test was computed to determine where the differences occured. Both the practicum group and the videotape group scored significantly higher than the control group. There were no significant differences between the practicum group and the videotape group. The findings of this study indicate that a videotape module is as effective as a practicum setting for training volunteers to coach and teach developmental bowling skills to mentally retarded individuals.

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COMPARISON OF FEMALE TEACHING AND COACHING BEHAVIORS IN JUNIOR HIGH SCHOOLS THROUGH SYSTEMATIC OBSERVATION.

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The purpose of this study was to observe specified teaching behaviors of educators who were engaged in the dual role of teaching physical education and coaching. The study was a series of 40-minute observations designed to record specific teaching/coaching behaviors on a sample of six teachers/coaches in northeast Louisiana during the fall 1987. The subjects were all female and employed as junior high school physical education teachers and basketball coaches. The subjects were selected because of their willingness to participate in the study. The subjects averaged 10.2 years of teaching experience and 6.7 years of coaching experience. The instrument that was used in the study was the A.S.U. Observation Instrument. Interval recording of five seconds was used with this instrument. Reliability of this study was confirmed by interobserver agreements of greater than 85 percent. The statistical tests of Chi Square and analysis of variance (ANOVA) were used to treat the data. The $p < .05$ rejection level was used for all test of hypotheses. The total observed frequencies of teaching behaviors were significantly different (Chi Square = 142.09) in the teaching role than in the coaching role. ANOVA was used to determine significance when comparing the subjects' teaching and coaching roles for the following specified behaviors: instruction behaviors (F = 0.832; p = .386), (groups x trials, F = 3.6385; p = 0.45), management behaviors (F = 10.609); p = .009), feedback behaviors (F = 14.6; p = .269) and silence behaviors (F = 0.342; p = .547), (groups x trials, F = 0.3425; p = .035). Hopefully this study will help educators better understand problems encountered by the teacher/coach in trying to fulfill the dual roles of teacher and coach. Ultimately, dedicated educators hope for effective teaching by the teacher/coach in both settings.

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THE RELATIONSHIP OF MAXIMAL LIFTING CAPACITY TO PUSH-UPS AND ABSOLUTE MUSCULAR ENDURANCE.

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The purpose of this study was to compare the effectiveness of push-ups and absolute muscular endurance (YMCA bench press test) for predicting maximal lifting capacity of the bench press exercise. Subjects were 144 untrained to moderately weight-trained males ranging from 18 to 34 years of age. Within 15 days, each subject performed (a) a one-repetition maximum bench press with free weights, (b) timed 60-second push-ups, and (c) an absolute muscular endurance test i.e., the YMCA bench press test. The YMCA bench press test consists of lifting an 80-lb barbell at a cadence of 30 lifts per minute until the subject can no longer keep pace. Care was taken to maintain proper form for each exercise. In addition, all subjects kept their hands spaced slightly wider than shoulder widths, i.e., the thumbs just touched the outside of the shoulder. Results of a multiple regression analysis revealed that bench press absolute endurance was more effective for predicting bench press strength (86% of the variance accounted for; SEE = 13.30 lb) than either push-ups 131% of the variance accounted for; (SEE = 29.40 lb), or push-ups and body weight (56% of the variance accounted for; SEE = 23.43 lb). Body weight did not have any effect on predicting bench press strength from absolute endurance ($\underline{r}$ = .93). Cross-validation (N = 48) of the prediction equation using bench press absolute endurance accounted for 91% of the variance (SEE = 9.9 lb) between the measured and predicted bench press strength ($\underline{r}$ = .95). The results of this study suggest that absolute muscular endurance may provide a feasible alternative to the one-repetition maximum in the assessment of muscular maximal lifting capacity.

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VARIATION IN THE RELATIVE TIMING OF MOVEMENT PHASES

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To test the theory of generalized motor programs with invariant relative timing (Schmidt, 1975; 1988), 10 male and 10 female subjects were filmed performing a jump over a moving object under conditions of variable object size (large, small) and variable preview distance (long, short). Film data were collected for 5 trials under each of 4 conditions. Absolute movement duration (AMD) and durations of the preparation (PREP), action (ACT), and flight (FLT) phases were calculated. Next, RT (relative timings which equaled phase durations/AMD) and RP (relative phasings which equaled phase duration/phase duration) were found. Results showed that duration of all phases as well as AMD varied either across object size or across preview. Analyses of RT produced several interactions between independent variables (object size, preview, gender). For FLT and ACT, gender interacted with preview, while main effects of object size were significant for RT of FLT. Object size interacted with both preview and gender for RT of PREP. Finally, main effects of gender were significant for RT of both ACT and PREP. It was concluded that RT was not invariant across object size or preview. The response patterns of male and female subjects differed across object size and preview. Analyses of RP indicated significant main effects of gender for all phasing scores. Main effects of preview were significant for FLT/ACT comparison and ACT/PREP comparison. Object size produced main effects for FLT/ACT comparison. Interactions were found between object size and preview for FLT/PREP comparison and between preview and gender for ACT/PREP comparison. It was concluded that RP was not invariant across either object size or preview. Results were discussed in terms of previous investigations where object speed (Barnett and Higgins, in press) or object speed and preview distance (Barnett, 1987) were varied. Possible invariant features in the organization of movements were also discussed.

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DIFFERENCES IN CHILD REARING ATTITUDES BETWEEN PARENTING AND NON-PARENTING FEMALE ADOLESCENTS IN A RURAL SETTING.

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Inadequate and destructive parenting behaviors constitute one of the major causes of child abuse and neglect. The purpose of this study was to assess differences in attitudes of parenting and non-parenting adolescent females towards parenting and child-rearing. A sample of 173 parenting and non-parenting adolescent females from Franklin, Jackson and Williamson counties of southern Illinois participated in the study. Of the 173 participants, 139 were non-parenting adolescents while, 34 were parenting adolescents. The instrument used for this study was the Adult-Adolescent Parenting Inventory (AAPI) (Bavolek, 1984). This instrument is used in assessing attitudes in four construct areas of child rearing: 1) Expectations of Children, 2) Empathy Toward Children's Needs, 3) Belief in Physical Punishment, and 4) Parent-Child Role Reversal. A section was added to determine demographic characteristics. Demographic characteristics were reported by frequency, mean, median and mode for the independent variables age, level of education, education of the mother of the adolescent, education of the father of the adolescent, parent or legal guardian, number who reside in home, race. Construct scores were reported by frequency, mean, median, and mode, obtained high score and obtained low score. Demographic differences did exist between the two groups in age, race, and socioeconomic status. Analysis of variance between parenting and non-parenting female adolescents who completed the AAPI on the four construct scores resulted in statistically significant differences being detected in the construct Expectations of Children ($p = 0.009$, $p - .05$). Statistically significant differences were not detected in the other three construct scores. Stepwise regression analysis found that birth was a statistically significant predictor of attitudes about expectations of children. An F value of 6.93 and an R^2 of 0.039 were obtained.

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ASSESSMENT OF CLERGY KNOWLEDGE AND ATTITUDES TOWARD NEAR-DEATH PHENOMENA.

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The purpose of this study was to assess the knowledge and attitudes of selected Pennsylvania and Illinois clergy toward near-death experience (NDE).

Using the Roper data bank, all counties in IL & PA were analyzed considering: population,median income, poverty level, unemployment, & percent urban, income, agriculture, manufacturing, & labor force. Two urban and 2 rural counties in IL were matched with 2 urban and 2 rural counties in PA. Clergy of all denominations(N=2,722)in each county were identified through the American Church List, Inc. All clergymembers in the eight counties were invited to participate in the study by completing and returning the instrument. Each received a reminder postcard 2 weeks after the 1st letter. The instrument was "Thornburg's Near-Death Phenomena Knowledge and Attitude Questionnaire", which consists of 7 general information questions,18 cognitive, 17 affective, 15 professional, & 11 demographic questions. Content validity was established using a panel of experts which reviewed the questionnaire & internal consistency reliability was .83-knowledge scale/.84-attitude scale. Factor analysis established construct validity & Cronbach alpha reliability coefficients were generally acceptable for internal consistency for each subscale.

Data were analyzed via the Statistical Analysis System (SAS). Measures of central tendency and variability were used to analyze clergy responses on the scales. A Pearson product-moment correlation coefficient was used to analyze significant(.05)correlations between knowledge and attitudes toward NDE & differences in knowledge & attitudes toward NDE based on gender. A Multiple correlation coefficient was used to analyze the correlation between knowledge & attitudes of clergy toward NDE based on age. T-tests were used in analyzing significant(.05) differences in knowledge & attitudes based on exposure to others and personal experience. Analysis of CoVariance was used to analyze significant difference in knowledge & attitudes based on geographical location (gender, denomination & age were controlled). This area of study should warrant educational involvement within the fields of health education and related human service professions. Information from this study can be applied to program development, classes, workshops & professional consultation on the subject of NDE. Integrating the phenomena within educational & professional programs will help meet experients' emotional needs.

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Interaction of Hand Preference and Movement Direction during Response Programming of Elite Female Athletes.

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The purpose of this study was to determine whether hand preference (preferred-P, non-preferred-NP) and movement direction (ipsalateral-IP, contralateral-CON) are independent or interactive during response programming (reaction time-RT, movement time-MVT) of elite female athletes. Ten college-aged varsity female softball (SB) athletes were tested using a choice RT paridigm over a two day period. Eighty choice RT trials were randomly delivered in four 20 trial blocks with catch trials at a 10 percent rate. Subjects were seated at a table with the palm of their responding hand resting on a RT response plate in front of and at the midline of their body (starting position = 0 degrees). The movement response consisted of rapid elbow extension in the sagittal plane moving 60 degrees IP or moving 60 degrees CON a distance of 38 cm to a MVT response plate. A 2 (hand preference) by 2 (movement direction) repeated measures design was used for the dependent measures RT and MVT. Results:

	RT (ms)			MVT (ms)	
	DIRECTION			DIRECTION	
HAND	IP	CON	HAND	IP	CON
P	283	277	P	162	194
NP	259	276	NP	175	202

Hand preference did not affect RT (p>.05), however, IP RT was faster (p<.05) for the NP hand. Thus, a significant interaction (p<.05) occurred between hand preference and movement direction. In contrast, MVT was faster (p<.05) with the P hand; IP MVT was faster (p<.05) than CON MVT; but, there was no interaction (p>.05) between hand preference and movement direction. It is concluded that for elite female athletes, hand preference and movement direction are interactive during the initiation phase of movement, but they are independent during the completion phase of movement. These differences may be due to training, heredity, or a combination of both.

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IN THE DANCE CLASSROOM: PERCEPTIONS OF DANCE COMPETENCE.

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The purpose of this study was twofold: to determine how college age students of dance and their teacher perceive the students' abilities in a beginning dance class and to determine whether there was a relationship between the instructional interactions in the class and the students' perceptions of their abilities. The subjects (N=26) were students enrolled in either a beginning jazz or beginning modern dance class taught at a northeastern university during the spring semester. The teacher of the classes was also considered as a subject. Each class was videotaped one class period per week for twelve weeks. During the twelfth week a perceived competence in dance scale, based on Bandura's self-efficacy measure, was administered to determine the students' self perceptions and the teacher's perceptions of the students' competence. The means and standard deviations were calculated for the perceived competence scores, three ability levels were indicated, and the students' and teacher's perceptions were compared using a 3 x 3 contingency table. Semi-structured interviews were conducted with 14 of the subjects and the teacher following the completion and analysis of the perceived competence instrument. These interviews were analyzed using a theory driven inductive analysis. The videotapes were analyzed using two interaction analysis systems, Cheffer's Adaptation of Flander's Interaction Analysis System (CAFIAS) and the Dyadic Adaptation of CAFIAS (DAC). The interaction categories were analyzed through factor analysis with one-way ANOVA's calculated for each factor. The results indicated that 57.7% of the students' perceptions of their dance abilities were congruent with the teacher's perceptions while 42.3% were incongruent. 63.6% of those labeled incongruent rated themselves lower in ability than the teacher while 36.4% rated themselves higher in ability. These three groups (two incongruent and one congruent) also differed in their perceptions of feedback, their attribution for their ability level, and their perceptions of their strengths and weaknesses as dancers. In addition, each group received differential treatment by the teacher in the type and the amount of feedback they were given. It was concluded that the teacher expectation effect was not a singular phenomenon operating within these two classes. While students' perceptions of their abilities were influenced by the teacher's expectations, other factors mediated their perceptions. The most important mediating factors were the students' attributions for their level of competence and their interpretation of the teacher's behavior.

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A SELF-MODELING VIDEOTAPE EXERCISE PROGRAM TO IMPROVE BALANCE IN DISABLED ELDERLY INDIVIDUALS. Debra Bill-Harvey, Devereux Foundation; Marion Iezzi, Devereux Foundation; Nancy A. Neef, Devereux Foundation; Gerry Geiss, Devereux Foundation.

Elderly persons, particularly those in institutional environments, are at high risk for falls and injury from impaired balance and declining physical functioning. Although these problems are potentially remediable or preventable through exercise, lack of motivation, opportunities, and resources for exercise serve to limit the operation of or participation in such activities. We sought to address these problems through the use of a self-modeling videotape exercise program with elderly disabled residents of a health care facility. Small groups of participants were videotaped while performing a low-intensity rhythmic exercise sequence developed by a team of health care specialists. The videotapes were edited to include only proper performance of the exercises, and were set to music chosen by the participants. Participants were given the opportunity to exercise, using the videotape of themselves to guide their performance, for 15-20 minutes, three days per week. The effect of the intervention on exercise participation was assessed using time-sample observation procedures during each session, and indicated consistently high levels of independent, correct performance of the exercises. Effects on balance were assessed via performance on a balance board walk test conducted at weekly intervals before and following implementation of the intervention, using a multiple baseline design across groups and participants within groups; the results indicated gradual increases in the percentage of steps taken within the boundaries, with concomitant decreases or stable performance with respect to speed and the number of steps taken, following the intervention. The results of pre-post administrations of the Mobility Test Fall Risk Index, and of a test of functioning on tasks of daily living indicated modest improvements on both measures. The preliminary findings suggest the potential of videotape self-modeling as a practical, effective, and economical means of promoting exercise participation, with resultant improvements in physical functioning, in disabled elderly populations.

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THE "SPORT CAREER DEATH" OF COLLEGE ATHLETES: INVOLUNTARY AND UNANTICIPATED RETIREMENTS.

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Recent research by Greendorfer and Blinde (1985) suggested that (a) the sport retirement process was not particularly problematic for college athletes and (b) theoretical perspectives from social gerontology and thanatology may not be suitable frameworks from which to study sport retirement for the college athlete. The present study offers a challenge to those findings by focusing upon a particular group of college athletes who rarely have been the focus of sport retirement research -- athletes who experience an involuntary and unanticipated exit from college sport (e.g., cut from team, career-ending injury, sport team cut from university program). The purpose of the study was to undertake an in-depth examination of the social and psychological processes which characterized the experiences of athletes following an involuntary and unanticipated exit from college sport. Extensive interviews were conducted with 18 athletes who had experienced such an exit. Interviews focused on (a) initial reaction to termination of career, (b) impact of "retirement" on other aspects of life, (c) coping strategies, and (d) preparation for retirement. Interview responses were content analyzed according to common themes. Contrary to previous research, the current sample frequently compared their exit feelings to those experienced with the death of a family member or friend and responses often paralleled the five stages of death and dying identified by Kubler-Ross (1969). Specific coping strategies will be discussed, as well as concepts depicting each of the five stages. Interestingly, responses sometimes differed depending on the particular type of exit experienced by the athlete (e.g., social bonding when entire team cut, social isolation when individual cut from team). Thus, it was apparent that the nature and timing of the sport exit are important factors to consider when studying the "retirement" process. Moreover, given the impact of the "sport career death" on the lives of athletes, it might be suggested that the sport structure more actively assist athletes in preparing for such exits.

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STABILITY OF INTERLIMB COORDINATION IN THE FIRST SIX MONTHS OF WALKING.

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Previous research on the lower limb coordination of newly walking infants revealed an adult-like, symmetrical phasing relationship both temporally and spatially at the very onset of independent walking (Clark et al, 1988). However, this coordination appeared to be "loosely coupled" as evidenced by increased variability around the mean pattern until the infants had been walking independently for 3 months. In the study presented here, we tested the stability of this early walking coordination by adding an artificial weight to the body. In dynamical systems theory, a stable system would integrate or "damp"the added weight such that no deviation in the pattern would be seen compared to the unweighted condition. On the other hand, an unstable system would not be able to dampen the added weight causing "critical fluctuations" to occur in the system which would result in the spontaneous emergence of a of a new, more stable pattern (Schöner & Kelso, 1988). Four subjects were filmed longitudinally at 1, 3, and 6 months from the onset of independent walking. At each filming session the infant walked along a runway, first with no weights and then with 5% of their total body weight attached to their back or their right ankle, the latter two conditions being systematically re-ordered. Step times and step lengths were measured from the film and the mean and variability phasing calculated for both temporal and distance (spatial) relationships. Using a Dunn's planned comparison procedure, results indicated no significant differences in the mean or variability of temporal coordination for any conditions or ages. On the other hand, the analyses revealed differences in the mean distance phasing between the 1-month walker with weight on the right ankle and all other conditions and ages except the 1-month walker with weight on the back. Differences in variability of the distance phasing were between the 1-month walker with weight on the right ankle compared to all other conditions and ages and between the 1-month walker with weight on the back compared to the 6-month walker with no weights and weight on back. The results suggest that the temporal lower limb coordination is surprisingly stable and robust to disturbances even in newly walking infants while the spatial lower limb coordination takes more time to stabilize. Since distance phasing is dependent on the magnitude and duration of limb movements as opposed to the timing of limb movements, we discuss the meaning of these results with respect to the early motor control and development of walking.

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AN EXAMINATION OF POLICIES AND PROCEDURES USED IN THE ADMINISTRATION OF PHYSICAL EDUCATION GRADUATE ASSISTANTSHIP PROGRAMS IN SELECTED UNIVERSITIES. Patsy C. Boroviak, The University of Tennessee, Knoxville.

The availability of graduate assistantships (Graduate Teaching Associate, Graduate Teaching Assistant, Graduate Research Assistant, Graduate Assistant) as a means of financial support is a valuable tool in recruiting and retaining superior graduate students. The purpose of this study was to examine assistantship programs with regard to: a) types of assistantships available; b) criteria for selection of graduate assistants; c) required workload (number of classes, contact hours, etc.); d) orientation and supervision of graduate assistants; e) task expectations of graduate assistants; and f) total dollar value of the assistantship. Ninety institutions, with enrollments of 15,000 or more, in 35 states were identified and selected to participate in the survey; sixty of those selected (67%) responded. The findings indicated that: a) most universities provided similar types of assistantships; b) criteria for selection of graduate assistants were comparable; and c) the importance of orientation and supervision of the graduate assistant was recognized and supported. Although the average workload of the graduate assistant was 20 hours per week for nine months per year, there was a wide variation in specific task expectations. Most graduate assistants were expected to perform one or two tasks; in some instances, the assignment included 4-6 tasks. Although 80% of the respondents indicated that written contracts were issued, only 55% indicated that a written analysis of expectations (task/time) were distributed prior to employment. The cash stipend appeared to be the criterion most often used to reflect financial value rather than the total dollar value (i.e. tuition fees plus cash stipend minus incidental fees). The data collected in this survey indicated that it might behoove the prospective graduate assistant to investigate the task/time expectations and to focus attention on the total dollar value of the graduate assistantship when making comparisons between or among universities of similar size and mission.

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LINEAR RELATIONSHIPS BETWEEN PHYSICAL FITNESS LEVELS AND ABSENTEEISM RATE OF POLICE OFFICERS.

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The purpose of this study was to evaluate the relationship of police physical fitness levels with absenteeism rate. The subjects were 515 males ($n = 436$) and females ($n = 79$) of a large metropolitan police department. Subjects' fitness levels were indicated by scores on their annual physical fitness batteries which included percent body fat, sit and reach flexibility, sit-ups, and one repetition maximum bench press. In addition to these tests a cardiovascular step test for those 34 years and younger and a YMCA bicycle ergometer evaluation for those 35 and older were administered. An overall level of physical fitness was determined by comparing each officer's scores with age and sex adjusted norms. A Pearson correlation coefficient indicated that for combined male and female scores a significant ($p < .05$) but low correlation existed between the bicycle (-.14), bench press (-.09), and overall level (-.10) and absenteeism; with no significant relationships found between absenteeism and body weight, percent fat, step test, flexibility and sit-ups. When male and female scores were compared independently, females demonstrated a shift in the significant ($p < .05$) but low correlations to sit and reach (.19) and percent body fat (-.20); this female trend is contrary to the males and may not have been expected in that absences decrease as flexibility decreases and body fat increases. A stepwise multiple regression analysis produced similar relationships. When controlling with the dummy variables of smoking, rank, race and sex only 18% ($R^2 = .18$) of the variability in absenteeism could be accounted for by the set of independent variables listed above. Only rank ($p < .001$) and race ($p < .05$) were significantly related to absenteeism; those ranked sergeant or higher and whites were less likely to be absent. Also, no significant relationship was demonstrated between absences and sex difference. The significance of this study is that attempts to raise physical fitness levels to reduce the monetary and operational disadvantages of absenteeism may be ill advised. This is of greatest concern if it involves the legal complications that arise from raising fitness levels through dismissals, demotions and disciplinary actions.

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ASSOCIATION BETWEEN FITNESS LEVEL AND STRESS REACTIVITY.

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Of the several benefits of physical exercise, much attention has been given to its role in improving emotional states. One line of research has looked at the correlation between fitness and autonomic reactivity to psychosocial or physical stressors. The purpose of this study was to examine the correlation between fitness level and tension measures collected during various challenging situations. Subjects were solicited from cyclist clubs in the New Orleans area, and eighteen subjects completed the study during the spring semester, 1989. VO_2max (1/min) was assessed during leg cycling on a Monarch trainer. Oxygen consumption was assessed using a Sensormedics metabolic measurement cart. Heart rate responses were monitored by an IMC electrocardiograph. On the following day, a 15-minute acclimation and rest period was followed by exposure to three stressful situations. Two audio-taped, psychosocial stressors were administered, followed by a two-minute cold pressor test. The first situation involved six mental subtraction tests where an answer was required after 20 seconds of serial mental subtraction. Next, a four-minute impromptu speech preparation task was presented. In this situation the subjects were requested to think of an equal number of pro and con arguments on abortion. During the final task, subjects held their right hands in a 5 degree Centigrade ice bath for two minutes. Three dependent measures were monitored throughout each of these tasks. Heart rate (HR) was assessed via a Quinton cardiograph, frontalis electromyographic (EMG) levels by a J & J model 53 myograph with data collection via an AIM computer, and self-report (S-R) was assessed using a 7-point scale (7=extremely tense; 1=deeply and completely relaxed). Results revealed significant ($p. < .05$) correlations between VO_2max (1/min) and EMG math (-.827), HR math (-.467), HR cold (-.472), and with S-R during the math (-.827), speech (-.481) and cold tests (-.449). Relationships were in the hypothesized direction in that higher fitness level was associated with less stress responsivity, especially on the math and cold pressor tests. Additionally, the stress reactivity dependent variables were, for the most part, significantly correlated. Thus, the findings of this preliminary correlational study support the notion that engaging in cardiorespiratory endurance activities is related to less stress reactivity.

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A COMPARISON OF PARTICIPATION INCENTIVES AMONG ADULT AND YOUTH WHEELCHAIR BASKETBALL PLAYERS.

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The focus of this study is on the relative importance placed upon various reasons for participation in wheelchair basketball by adult and youth participants. The subjects used for this investigation consisted of male and female adult and youth wheelchair basketball participants. A total of 192 individuals responded to the survey. This sample was comprised of 88 (46%) physically disabled adult and 104 (54%) youth participants. The Participation Reasons Scale (PRS) used in this investigation is a self-reporting, 26 item Likert-scale instrument, on which respondents are asked to rate the relative importance of incentives for participation in sports competition on a 5-point scale. Participation mean scores were used to provide an overall rank ordering of the reasons for both the adult and youth participants, and t-tests were conducted to examine if there were any group differences on individual reasons for participation scores. In addition, in order to more clearly understand the way in which groups of respondents may differ in the incentive categories, multivariate analysis techniques were employed. Seven similar reasons for participation ranked in the top ten reasons for participation by both adult and youth participants and the groups had statistically equivalent scores on 21 of the 26 PRS items. However, there were some notable differences between the adults and youth participants. The multivariate F-ratio was significant ($p<.01$) indicating that a relationship existed between the participant grouping and the 5 motivational factor scales. A significant ($p<.01$) univariate F-ratio for two (Ego and Social Integration Incentives) of the five factor scales. In addressing the programmatic implications of this investigation, it is apparent that the prominence of task-oriented motives is a very positive finding in that it reflects a dominant motivational impetus which is internally driven and which emphasizes the accomplishment of personally relevant performance goals rather than such externally directed goals as "winning" or "beating someone else." It is essential that wheelchair sport coaches and program supervisors reinforce reliance upon individually relevant task-oriented motives through the introduction of instructional and participatory sport programs which emphasize the pursuit of challenging but attainable personal behavioral goals. This type of orientation allow all participants to experience success regardless of their relative skills and abilities. In conclusion, when comparing the participation motives of adult and youth participants in wheelchair basketball, it appears that greater similarity than dissimilarity exists between the two groups.

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THE EFFECTS OF VISUAL TRAINING ON LEARNING A MOTOR SKILL

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Visual perception may generally be defined as a process of gathering information from the environment by the visual mechanisms (Brown, 1987). Learning and performing motor skills depends on the efficiency of perceptual abilities (Singer, 1977). The basis for using visual skills to enhance sport performance has not been thoroughly investigated. The purpose of this study was to investigate if incorporating visual training techniques while learning motor skills would enhance learning. Thirty-four college (experimental) students enrolled in a beginning tennis class practiced visual training for fifteen minutes each day while thirty-three (control) students enrolled in a similar class taught by the same instructor received identical instruction but no visual training. Visual training skills included eye tracking, visual perimetry, and hand-eye coordination employing the AcuVision 1000™ Optometric Visual Trainer. All subjects were pre and post tested on the Bernell Stereoscope Vision Test BC/VT-A and three basic tennis skills tests (serve, backhand, and forehand drive). For purposes of analysis, subjects were classified into high, medium, and low visual ability groups. The visual and tennis skills tests results were statistically analyzed employing a 3x2x2 Factorial ANOVA with repeated measures. The results revealed: (1) The Visual Training Group exhibited a significantly greater change in Tennis abilities than the Control Group [$F(1,61)=5.62$ $p<0.05$], (2) Tennis skills improvement was related to subjects initial visual abilities [$F(2,61)=4.21$ $p<0.05$], (3) Subjects with low initial visual abilities benefited greater from visual training than subjects with high initial visual abilities and this change translated into greater improvement in tennis abilities [Tukey post hoc $p(i)<0.05$, $p(\text{overall})<0.12$] and (4) High Visual Ability subjects regardless of treatment group exhibited similar improvements in tennis abilities [Tukey post hoc $p(i)<0.05$, $p(\text{overall})<0.12$]. It may be concluded that students diagnosed as medium to low in initial visual abilities can benefit from Visual Training that directly translates into improved learning of tennis skills.

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HEALTH SCREENINGS IN URBAN VS. RURAL SCHOOLS IN CENTRAL MISSOURI

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Since undetected health problems may harm the child's learning potential, health appraisal is an important component of the school health program. Surprisingly, a large number of states (including Missouri) do not legally mandate health appraisal. In Missouri, urban school districts serve the needs of 483,983 students, whereas, rural schools serve the needs of 322,656 young people. The purpose of this study was to determine what type(s) of health screenings are being conducted in rural and urban public schools. The study sample was comprised of 127 schools in eight Missouri counties. Questions asked of each school regarding screening methods were designed in consultation with the Missouri State Department of Health. According to the U.S. Bureau of the Census, areas are designated urban if more than 2,500 people live in them and rural if less than 2,500 live in them. Schools were thus divided into urban and rual utilizing this definition. Although only 28% of the urban schools studied, conducted dental screenings, 88% conducted physical assessment (height and weight checks, blood pressure measurements, podiatric assessments, the child's nutritional status, and disease scrutiny), and 100% conducted vision, auditory and scoliosis screenings. Approximately, 54% of rural schools conducted physical assessments. Nineteen percent of the rural schools in the sample did not test for vision or auditory problems. Eighty-five percent tested for scoliosis and kyphosis. Only 25% tested for dental problems. When the data from the rural and urban schools were statistically treated, it was found that significant differences existed on all except one of the screening procedures. Significant differences existed among schools for the screening procedures: physical assessment (X^2=14.76,df=1,p.= <.0001), vision screening (X =13.88,df=1,p.=<.0002), auditory screening (X^2=13.88,df=1,p.=<.0002), and scoliosis screening (X^2=11.14,df=1,p.=<.0008) with urban schools conducting proportionately more screenings than rural schools. No significant differences existed in the proportions of schools that screened for dental problems (X^2=0.10,df=1,p.=<.7493). As evidenced by this study, some schools (particularly the rural schools) conducted no health screenings and a large percentage of the schools tested for only some of the possible health impairments. A small percentage (generally urban schools) performed comprehensive health screening.

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INCIDENCE OF BREAST FEEDING PROBLEMS ASSOCIATED WITH EXERCISE IN LACTATING MOTHERS WHO EXERCISE REGULARLY.

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Several women have reported (by personal communication) that their infants fussed or refused to nurse following exercise. Significant concentrations of lactic acid have been detected in postexercise milk. These concentrations have been considered to be high enough to produce a sour taste which the infant may reject. The purpose of this study was to survey the incidence of breast feeding problems following exercise. Fifty-eight lactating women (from 11 states) who engaged in regular physical conditioning (age=34.1 ± 3.3 yrs) were surveyed to describe breast feeding and exercise patterns, exercise and milk yield, and infant acceptance to postexercise milk in postpartum. All women engaged in supervised programs of continuous dynamic exercise or pregnagym, 2-4 days per week for a duration of 20-40 minutes, at an intensity of "somewhat hard" to "hard". Statistical analysis included descriptive statistics, central tendencies, and chi-square. There was no significant relationship between mode, frequency, duration and intensity of exercise and breast feeding patterns. No women reported that an infant refused to nurse within 30 minutes following exercise, however, four reported that their infants "often" had difficulty nursing after exercise. Regular exercise had no noticeable effect on milk yield. In conclusion, moderate physical conditioning appears to have no significant effect on breast feeding, infant acceptance to postexercise milk, and milk yield in postpartum women who exercise.

Supported by IU BRSE Grant (SO7 RR07031) and Adult Fitness Program.

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THE LEFT VENTRICULAR CAVITY DIMENSIONAL RESPONSE TO UPRIGHT WEIGHT LIFTING.

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To determine the magnitude and direction of the left ventricular (LV) cavity dimensional response to maximal, upright leg extension (LE) a heterogeneous sample of 32 variously trained males was examined by a 2D-guided M-mode echocardiographic technique. Systolic (Ds) and Diastolic (Dd) LV cavities were measured within 20 sec post exercise which consisted of 3 sets of LE @ 60% 1-RM with the last set extending to voluntary exhaustion. A valsalva was allowed to increase the applicability of the results to typical weight lifting experience and to increase subject lifting potential in order to stimulate high LV afterloads. Dd decreased nonsignificantly by 8% and Ds decreased significantly ($p<0.0002$) by 19%. It was concluded that this form of exercise produces acute LV dimensional changes that is different in magnitude and direction to those reported for milder forms of resistive exercises such as those requiring a smaller percentage of contracting muscle mass and a lighter relative load. Heavy weight lifting, therefore, may provide a stronger LV stimulus for chronic high afterload adaptations.

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A COMPARATIVE ANALYSIS OF WELLNESS ATTITUDES OF SUICIDAL AND "AT RISK" COLLEGE STUDENTS. Jody A. Brylinsky, Ph.D., and Michael R. Hoadley, Ph.D., University of South Dakota.

Wellness is primarily an attitude and/or a response to living. In order to achieve a higher level of wellness an individual must be able to cope well with daily stress or "threats". This in turn requires maximal use of rationality in order to accurately and objectively assess these threats. Since coping ability is related to knowledge-intelligence, it is hypothesized that knowledge of health data and personal health decision may offer some indication of those individuals who are not coping well. For college-aged students one notable threat to a wellness lifestyle is the negative and alternative coping behavior known as suicide. Therefore, the purpose of this investigation was to determine if there were differences in the wellness inventory scores on the 286-item Lifestyle Assessment Questionnaire (LAQ) of individuals reporting suicidal attempts, those individuals who report a serious suicidal imagery and are therefore classified as "at risk", and a representative (male-female) control group of individuals with non-suicidal tendencies. Subjects for this study consisted of 1150 freshman students at two college campuses in South Dakota during a two-year period. All respondents were classified as "suicidal" (N=44) according to their affirmative response to Item #26 "Have you ever attempted suicide?" The 140 subjects identified as "at risk" did not indicate an attempted suicide, but answered positively to the questions "Have you seriously considered killing yourself within the past year?" (Item #25), "Have any of your relatives committed suicide?" (Item #27), and "Do you frequently feel that life is not worth living?" (Item #28) The control group ("no risk") consisted of a proportionate number of randomly selected males and female students who reported "No" to Items #25, 26, 27, and 28. Data were analyzed utilizing ANOVA and Chi-square statistics. Over 75% of the subjects in the "suicide" category were female, with a mean age of 17 years and were three times more likely to be smokers. Results found selected differences between the three groups on the 11 inventory subscales, as well as differences in their selection of personal growth topics. The "at risk" group had the lowest composite wellness scores and showed the greatest deviance from the national norm (which is surprising, especially in comparison to the "suicidal" group); the control group ("no risk") had the highest overall wellness scores. Both the "at risk" and "suicidal" subgroups validate the mental health inventories by scoring lower than the control (no risk) group. Specifically, the social/environmental inventory (which measures the degree to which one contributes to the common welfare of the community) was lower than the emotional awareness or management inventory score. The "at risk" and "suicidal" groups indicated a need for further information in topics dealing with depression and interpersonal relations, which were not evident in the requests from respondents in the control group ("no risk"). The significance of the results is obvious, especially relative to mental/emotional programmi[illegible]s on college campuses. The LAQ appears to be a valuable tool in the identification of wellness issues addresing the needs of "at risk" college students.

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A COMPARISON OF ATTITUDES AND EXERCISE HABITS OF ALUMNI FROM UNIVERSITIES WITH VARYING DEGREES OF REQUIRED PHYSICAL EDUCATION PROGRAMS.

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A survey of attitudes about their university physical education program and current exercise habits was sent to a representative sample (N=6725) of alumni who had graduated between 1970-1987 from four private universities. The percent returned was 48, 43, 31, and 43 from University A-D respectively. All four universities had required physical education programs. University A had a 8 credit hour required program with the first two semesters devoted to health fitness concepts. University B had a 4 credit hour requirement that included a two credit health fitness concepts course, C had a 3 credit requirement including a one semester - 2 credit health fitness course, and D had a one course activity requirement without a required concepts course. Results indicated that alumni of A differed significantly from B, C, and D in the perceived benefit of their university's physical education program. Significant differences identified were: (1) knowledge about health/physical fitness ($P<0.001$), (2) attitude towards physical fitness ($P<0.001$) and (3) their current exercise habits ($P<0.001$). To quantify exercise habits, the total weekly time in minutes and/or distance (when appropriate) devoted to numerous sports and fitness activities were converted to aerobics points (Cooper, 1982). Alumni from A, B, and C earned significantly ($P<0.05$) more aerobics points from fitness activities (walking, jogging, cycling, swimming) than D. The same pattern was true for aerobics points earned from participation in individual sports. When all physical activities (fitness, individual and team sports, and other aerobics activities) were combined to compute a total weekly aerobics point average, again alumni of A, B, and C earned significantly ($P<0.05$) more aerobics points than did D. Alumni of A earned significantly ($P<0.05$) more aerobics points from fitness activities than B and C, however not more total weekly points when all physical activities were combined. The overall conclusion of the study was that the attitudes and exercise behaviors of alumni are influenced by the type of university physical education requirement.

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EFFECTIVE COOPERATING TEACHER QUALITIES AS PERCEIVED BY EXPERIENCED STUDENT TEACHERS. Cathy M. Buell, San Jose State University.

One undisputed fact about the student teaching experience is that the cooperating teacher is the key to the success of the experience. However, a precise statement of effective qualifications accepted by all those involved in student teaching has not been developed. The purpose of this study was to determine student teacher perceptions of cooperating teacher qualities. A Likert style inventory was developed based on effective qualities identified by cooperating teachers seen as successful by other professionals. One hundred thirty-four student teachers at two major universities in different areas of the country completed the inventory at the end of their student teaching experience. From the 30 stated characteristics, the mentor type qualities of maintaining open communication and clearly stating reasonable expectations were cited by over 80% of all student teachers as very important. Modeling an enthusiasm for teaching was the only role quality identified as very effective. Least important qualities included several generally regarded highly by involved professionals; observing lessons regularly and assisting student teacher with planning. Race, sex, and field of study did not significantly affect determination of effective qualities. It was concluded that the perceptions of cooperating teacher qualities are different between the groups involved in the experience. Suggestions for bridging the differences include administration of personal style inventories to match student and cooperating teachers and a two way assessment/self assessment at the completion of student teaching to determine the effectiveness of both the student and the professional.

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A KINEMATIC ANALYSIS OF THE PELVIS AND UPPER TRUNK DURING A FORCEFUL OVERARM THROW.

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The overarm throwing motion, which is a prevalent movement pattern in many sport activities is a difficult movement to analyze due to its complex nature. Breaking the movement down into its segmental contributors is one way to begin to piece the puzzle together. This investigation, done in three dimensions, examined the rotational components of the trunk segments (upper trunk and pelvis) kinematically, to determine the velocity and acceleration timing, and the relationship to the resultant ball velocity. Using three-dimensional cinematographic techniques, six skilled subjects were filmed as each threw a baseball, with an overhand motion, at maximum velocity. The Direct Linear Transformation (DLT) method for three-dimensional reconstruction from two-dimensional film images was used to obtain spatial coordinates of specific anatomical landmarks. A reference system located on the body and related to an inertial reference system was used to determine the rotational displacement of the upper trunk and the pelvis. The angles of rotation around the respective longitudinal axes of the upper trunk and pelvis were calculated, smoothed with a quintic spline and the resultant velocities and accelerations derived. The results indicated a timing sequence of accelerations and decelerations of the trunk segments that can be associated with the resultant velocity of the ball (in the hand). The angular acceleration of the pelvis in the throwing direction occurred prior to the upper trunk reversing direction and prior to contralateral foot flat. Then, the upper trunk accelerated to an angular velocity of a magnitude greater than that attained by the pelvis and the rotation of the pelvis began to slow. When the upper trunk began to decelerate, the resultant linear velocity of the ball (in the hand) was increasing towards its peak. The angular accelerations of the pelvis and upper trunk were negative at the time of ball release.

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BELIEFS ASSOCIATED WITH ERGOGENIC AID USAGE IN HIGH SCHOOL ATHLETES. Diane E. Butterworth, California State University San Bernardino; Sandra K. Cross, California State University San Bernardino.

Athletes clamor for nutritional guidelines to improve their performance. In response, the popular press promotes the use of many ergogenic aids with inaccurate information about nutrition and biology. A standardized survey was used to assess beliefs about nutrition and biology and usage of ergogenic aids of 178 high school athletes. A list of beliefs (40 items) was generated from claims in popular health and fitness magazines. These beliefs were measured on a 7-point likert scale. Ergogenic aids (20 items) were also rated on a 6-point usage scale. All ergogenic aids had been tried, ranging with 3% of the athletes having used steroid hormones to 82% having used vitamin C. In examining the belief statements, it appears that many high school athletes believe the inaccurate advertising claims found in popular literature. Chi square analysis was used to examine selected correlations between having tried ergogenic aids and belief statements. Multivitamin usage was related to the belief that vitamins give you energy. Both salt tablet and electrolyte drink usage were related to the belief that muscle cramps are not a result of lack of water ingestion. Caffeine usage was related to the belief that caffeine improves endurance in events that last less then one hour. Protein supplement usage was correlated with the beliefs that athletes do not get sufficient protein from their diets, that amino acid pills are easier to digest than food protein, and that supplemental protein is made into muscle cells. Further sports nutrition education should be directed at correcting these inaccurate beliefs about nutrition, biology, and ergogenic aid usage.

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SAFETY AND VALIDITY OF THE KRAUS-WEBBER TEST OF MINIMAL STRENGTH AND FLEXIBILITY. Stephen A. Butterfield, University of Maine; Robert A. Lehnhard, University of Maine.

The Kraus-Webber Test of minimal muscular fitness has six components. A measurement of strength of the abdominals combined with the psoas, the abdominals isolated from the psoas, the psoas from the abdominals, the upper back, the lower back and the flexibility of the back and hamstrings. This test has been in use by physical educators for over 30 years. The purpose of this study was to determine the safety, benefit, validity and possible alternatives to this test as interpreted by allied health professionals. Seventy-eight licensed physical therapists were given written and illustrated instructions for each of the six exercises which comprise the Kraus-Webber Test. They were then asked to rate the potential for injury, the risk/benefit ratio, and the validity of each exercise. In addition, they were asked to describe any alternative measures which would more safely and accurately describe the strength and/or flexibility of the muscle groups assessed by the Kraus-Webber Test. Among those surveyed, the test for psoas strength has the greatest potential for injury. Fifty-two percent believe that the potential for injury with this test is enough to be concerned about, or that injury is likely to occur; 69.3 percent believe that the risk outweighs the benefit in this test item; and 49.4 percent believe the described test for psoas strength has little validity. Seventy-five point six percent of those surveyed offered various alternatives for testing psoas strength. The test items for upper back strength and abdominal strength without the psoas have the least potential for injury (84 percent and 79.2 percent), the highest risk/benefit ratio (69.3 percent and 62.7 percent), and the greatest validity (70.7 percent and 52 percent) according to those surveyed. The potential for injury, risk/benefit ratio, and validity of the remaining test items (abdominal with psoas strength, lower back strength and back with hamstring flexibility) were all low. The respondents also offered alternative measures for some of the tests. In conclusion, two of the items on the Kraus-Webber Test appear to be safe and valid measures of specific muscular strength. The other four items appear to have safer, more appropriate alternatives.

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EFFECTS OF WATER EXERCISE ON BODY COMPOSITION IN OVERWEIGHT FEMALES.

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Recently, the popularity of upright water exercise or "aqua-aerobics" has increased markedly. The advantages of exercise in the water for individuals who may have problems with mobility during weight bearing exercise on land is one factor which has led to its popularity. Advantages gained by exercising in the water make this type of activity an excellent modality for persons who are overweight. However, the efficacy of water exercise for improvement in body composition has not been adequately addressed. Therefore, the purpose of this study was to examine body composition changes in a group of overweight women after a twelve week program of upright water exercise.

Ten adult and four adolescent females volunteered to participate in this study. Subjects were divided into three groups based on age and percent body fat (%BF). Mean ages for the overweight adults (OWA), overweight teens (OWT) and normal weight adults (NWA) were 39.5, 13.0 and 34.5 years respectively. Body fats were 37.88, 39.88 and 21.82 for the OWA, OWT, and NWA groups respectively at the beginning of the study. Each subject worked approximately 20 minutes three days/week in a target heart rate zone estimated to be 60-80% of their predicted maximal heart rate.

A nonsignificant ($P>.05$) increase in percent body fat (%BF) was observed in the OWA group while a nonsignificant ($P>.05$) decrease in %BF was shown for the NWA group. A significant ($P<.05$) decrease in %BF was recorded for the OWT group. Both OWA and OWT increased body weight (BW). The OWA group decreased in lean body weight and the OWT group increased in LBW but these changes were not significant ($P>.05$). The NWA group experienced a slight decrease in weight and a noticable increase in lean body weight but not significantly ($P>.05$). The authors conclude that upright water exercise may produce beneficial body composition changes in overweight adolescents but its effectiveness for adult females is questionable. Program length may need to be extended past 12 weeks for positive changes in body composition to occur. The possibility also exists that diet modification may be necessary in addition to exercise for overweight females. This needs to be studied further for these groups.

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COLOR, COURAGE, AND COMMUNITY: LEISURE AND SPORTING PURSUITS OF BLACK RESIDENTS OF THE GREATER SAN FRANCISCO BAY AREA 1920-1950.

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This study examines the growth of active leisure pursuits and sporting organizations among the Black communities of the Greater San Francisco Bay Area in the period between 1920-1950. Black Americans had arrived in small numbers in San Francisco shortly after the discovery of gold. Over the course of the seven decades between 1850-1920, they developed their own rich and varied "associational" life, with activities ranging from simple games played in connection with picnics of church, fraternal, and benevolent societies to semi-professional baseball teams like the Oakland Royal Giants. Historians have recently begun to examine the recreational and sporting activities of various ethnic populations in the United States as a part of larger studies (e.g. Gary R. Mormino's Immigrants On The Hill: Italian-Americans In St. Louis 1882-1982; R.A. Burchell's San Francisco Irish 1848-1880). As yet, few studies have focused upon Black recreational and sporting activities. Rob Ruck's Sandlot Seasons is one of these. Douglas H. Daniel's Pioneer Urbanites, a historical study of Black San Francisco, is not concerned with sports or recreation. The decades between World War I and II were especially dynamic for the Bay Area's Black communities. Each war stimulated a mass influx of Blacks from the rural south. Segregated and excluded on the basis of physical appearance (and especially the color of skin), Blacks were compelled to construct social institutions of their own. The Linden Branch Y.W.C.A., the Market St. Y.M.C.A., and De Fremery Recreation Center were three such institutions. These and similar organizations were an important force in the decades between 1920-1950, catering to a predominantly Black clientele. Their various programs taught intellectual, moral, and physical values in addition to health and physical efficiency. Exercise and competitive sports programs as well as vocational counseling and training were a significant part of their programs. This study utilized local collections such as the Northern California Center for Afro-American History and Life and the Afro-American Historical and Cultural Society, Inc. Newspapers, brochures, programs, correspondence, reports, etc., were valuable sources. Extensive use of oral histories has also informed the research.

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THE DYNAMICS OF INTER-ORGANIZATION CONFLICT IN A YOUTH SPORT LEAGUE.

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The dynamics of inter-organization conflict among youth sport teams organized for mutual benefit are examined via case study of a summer swimming league in the American southwest. Participant observation, interviews, and archival analysis of league and member team records are used to document and describe the escalation of political rivalries, the emergence of policy coalitions, the aggravation of conflict among teams, and the consequent efforts to splinter or disband the league. It is shown that the conflict resulted, in part, from the league's inability to formulate or implement policies addressing the consequences of its own growth and success. It is argued that the league's inability to generate substantially new policies can be attributed to three forces: (1) goal confusion, causing means to be conflated with ends during policy debates; (2) tribalism in the confederation of rivals, causing parochial issues to dominate league decision processes; and (3) obeisance to tradition, causing policy proposals to be disregarded. It is suggested that team competition, which is the raison d'etre of such leagues, will generate these forces unless specific procedures are implemented at league level to blunt their impact.

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QUICK AND EFFECTIVE STRESS SCREENING. Cynthia Chandler, University of North Texas; Cheryl Kolander, University of Louisville.

A large number of stress appraisal instruments are documented in the literature (Holmes & Rahe, 1967; Sarason, Johnson, & Siegel, 1978; Linn, 1985; etc.), yet among these assessments there is no inclusion of a brief stress screening device with reported reliability and validity measures. Stress is one of the most prominent health concerns in our society (The 1990 Health Objectives for the Nation, 1986). Therefore, health promoters and counselors are encouraged to screen for potential risks due to stress. The purpose of this study is to report the development of a fifteen-item Stress Checklist which is utilized quickly and effectively to screen for stress in physical and emotional health assessments. Item content includes both somatic and psychological descriptors of no more than one to four words. Response format is a simple check mark by each item that has been recently experienced. The Stress Checklist reports high reliability and strong validity. With a sample of 341 female and 117 male college undergraduates participating in an overall health assessment program, the following reliability measures were obtained: Kuder-Richardson, .7228; Guttman Split-Half, .7153; and Spearman-Brown Split-Half, .7240. Principal components factor analysis with varimax rotation was performed with the same sample and 44.6% of the total variance was accounted for. Items factored into four mutually exclusive descriptive clusters with a cutoff score of .40: concerned preoccupation (4 items); depressed mood (4 items); somatic discomfort (4 items); and prolonged physical impact (3 items). Construct validity was established by comparing responses from a separate sample of 121 health and physical education undergraduate majors on the Stress Checklist with the Hassles Scale (Kanner, Coyne, Schaefer, & Lazarus, 1981). The total number of items checked on the Stress Checklist was significantly correlated in the positive direction with the number of "hassles" reported (Pearson r=.5243, P=.0001). Subjects were divided into three risk groups based on the total number of items checked on the Stress Checklist; 1) 0-5, low; 2) 6-10, moderate, and 3) 11-15, high. Mean scores on the Hassles Scale were significantly different (P=.0001) in the predicted direction between all three stress groups (Means: 1) 49, 2) 71, and 3) 99). Respondents are given programed suggestions for positive health behaviors to counter stress relative to the risk group they fall into as determined by the Stress Checklist.

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Effects of Education on Mother's Beliefs about the Abilities of Their Developmentally Delayed Preschool Children. Judy P. Chandler, University of Kansas.

The purpose of this study was to examine the match between beliefs of mothers about their children's abilities and the actual abilities of the 4 to 5 year old mildly developmentally delayed children. Effects of educational versus noneducational treatment of mothers was assessed before and after a 9 to 12 week intervention period. During this intervention period children in each mother-child dyad received treatment in the Motor Lab at the University of Missouri in the areas of fine and gross motor behavior, concept knowledge, and expressive language.

Mother-child dyads were randomly assigned to either the treatment (N=10) or the nontreatment (N=10) group after being actively recruited from pre-schools in the Columbia, Mo. area over an 18 month period. Preschool teachers made initial recommendations for children to be screened and considered for inclusion in the study based on observations as well as comparisons with their peers that indicated possible developmental delays and risk status for kindergarten readiness. The Gessell and Amatruda Developmental Diagnosis Evaluation (1974) was given to children to determine current level of acquired behaviors while mothers were asked to confirm or deny their child's mastery on each of the 48 items, both before and after the educational intervention treatment. Mothers in the treatment group received intervention that focused on child development information, their child's play activities, as well as being assigned homework which reinforced lab play. Mothers in the nontreatment group were kept blind to the activities of their children in the lab setting and intervention was noneducational with no assigned homework. Analysis of variance of the two independent groups mean scores indicated that no significant change in match between mother's beliefs and children's behavior took place as a result of treatment effect. Further investigation of independent group differences in match among clusters of behaviors is currently under way.

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Comparison of Self-Reported Health Education Competencies: A Preliminary Study of Chinese and American School Teachers.

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The purpose of this study was to compare the self-reported health education competencies between public school teachers in Taiwan and in Florida. The finding of this preliminary study could be beneficial in facilitating the development of competencies and credentailing process of health educators. Thirty three teachers (25 women and 8 men) from Taiwan and 44 teachers (32 women and 12 men) from Florida participated in the study. A self-assessment instrument developed by the National Task Force on the Preparation and Practice of Health Educators was used to assess teachers' perceived competencies in health education and their perceived practical application of these competencies. This instrument contains 79 skill statements and is divided into seven competency areas. These areas include 1) assessing individual and community needs for health education; 2) planning effective health education programs; 3) implementing health education programs; 4) evaluating effectiveness of health education programs; 5) coordinating provision of health education services; 6) acting as a resource person in health education; and 7) communicating health and health education needs, concerns, and resources. The instrument was first translated into Chinese and pilot tested before it was administered to teachers in Taiwan and in Florida in group setting respectively. Responses to each item on the instrument were scored according to a four point scale. Total scores for each competency area were tabulated and then divided by the number of items to achieve an average score. Mean scores of the perceived competencies ranged from 2.17 (area 6) to 2.85 (area 3) for the Florida group and 2.92 (area 5) to 3.11 (area 3) for the Taiwan group. Results of two sample t-test indicated that there were significant differences of perceived competencies in all seven areas ($t1=2.46$, $p<0.05$; $t2=2.37$, $p<0.05$; $t3=2\text{-}52$, $p<0.05$; $t4=3.27$, $p<0.01$; $t5=3.53$, $p<0.01$; $t6=6.54$, $p<0.01$; $t7=6.06$, $p<0.01$). Mean scores of the perceived practical application of competencies ranged from 2.81 (area 6) to 3.18 (area 3) for the Florida group and 3.0 (area 1) and 3.21 (area 6) for the Taiwan group. Results of the t-test indicated that there were no significant differences between these two groups in all areas except in the area 6 ($t=3.15$, $p<0.01$). It was concluded that teachers in Taiwan perceived having greater competencies in health education than teachers in Florida. However, the results also indicated that teachers in Taiwan had similar perception of practical application of health education competencies when compared with teachers from Florida.

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AN EXAMINATION OF BURNOUT AND LEISURE SATISFACTION IN LEISURE SERVICE PROFESSIONALS. J. Thomas Chesnutt, Marshall University; Stephen Nagy, University of Alabama.

Burnout is the state of fatigue brought about by devotion to an occupation which failed to produce the expected rewards. High burnout rates are more likely among occupational settings where there is considerable human interaction. To date, research has focused primarily on personality factors and how these interact with the advent of burnout in the work environment. The psychological, social and physiological benefits from leisure pursuits have the potential to buffer the development of burnout, but this area has not been investigated by research. The purpose of this study was to examine the relationship between burnout and leisure satisfaction. The subjects, full-time leisure service professionals who volunteered to participate (N=165), were mailed the three instruments. Burnout was assessed using the Maslach Burnout Inventory which consisted of three subscales: emotional exhaustion, depersonalization and personal accomplishment. Leisure satisfaction was measured using the Leisure Satisfaction Scale which consisted of six subscales: psychological, educational, social, relaxation, physiological and aesthetic satisfactions. A five item questionnaire was used to gather demographic data. The sample yielded 104 usable questionnaires producing a 64% response rate. The results indicated that the leisure service professionals had modest burnout rates and high leisure satisfaction on all the subscales. The relationships among burnout, demographic factors and leisure satisfaction were examined using a backward multiple regression technique. Significant models were developed for emotional exhaustion and depersonalization. The regression models explained from 16 to 25% of the variance on burnout. Age was the dominant predictor variable for emotional exhaustion whereby older subjects experienced less emotional exhaustion. Other predictor variables included psychological, aesthetical and physiological leisure satisfactions; the latter demonstrated an inverse relationship. The depersonalization subscale showed a similar relationship with females having higher levels; the psychological satisfaction scale related inversely with the burnout measure. The results suggest that non-work factors such as leisure pursuits have the potential to buffer burnout process.

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CALORIC EXPENDITURE AND FUEL UTILIZATION DURING 60 MINUTES OF WALKING.

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This study examined caloric expenditure and fat utilization during 60 mins of continuous exercise. Following an overnight fast, seven overfat (40.5 ± 7.0%) females aged 22 to 43 years walked on a motor driven treadmill at an average speed of 2.8 mph. Exercise heart rate was maintained at 55 ± 3% of maximal heart rate reserve. Oxygen consumption and respiratory exchange ratio (RER) were continuously monitored by open circuit spirometry. Caloric expenditure and fuel utilization at 10 min intervals were determined from the caloric equivalent for oxygen uptake (L/min) and RER. A repeated measures ANOVA was utilized for the analysis of data with Newman-Keuls' post-hoc employed to locate significant differences between means. Rate of caloric expenditure during walking was 5.1 Kcals/min and did not vary significantly throughout the exercise bout. Total caloric expenditure of 305.8 Kcals was 47% fat and 53% carbohydrate. RER dropped by 7% from .891 at 10 mins to .831 at 60 mins. Declines in RER during walking became significant ($p < .05$) at 40 mins when compared to 10 and at 50 mins when compared to 20. While 30, 40 and 50 min RERs were not statistically different, the continual decline in RER observed at 60 mins was significant when compared to each 10 min interval. Percentage of caloric expenditure as fat increased from 36.7% at 10 mins to 56.7% at 60 mins. As such, significant increases in the rate of calories expended as fat were observed at 30 compared to 10 and 20 mins, and 60 compared to 30, 40 and 50 mins. While the rate of calories expended as fat continued to increase with extended duration, differences between 30, 40 and 50 min rates were not significant. These results suggest an initial delay in the increase of fat utilization when sedentary overfat females walk at moderate rates. Significant shifts in the rate of fat caloric expenditure at 30 and 60 mins suggest that the benefits of walking for fat reduction may be significantly increased when duration is initially extended past 30 mins and further enhanced when duration of walking reaches 60 mins.

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THE RELATIONSHIP OF SELECTED FACTORS TO YOUNG CHILDREN'S DIVERGENT MOVEMENT ABILITY

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The problem of the study was to determine the relationship of age, gender, background of movement experience and level of gross motor performance to young children's divergent movement ability. The purpose of the study was to establish baseline data about the ability to produce divergent movement responses among three groups of children, four, six and eight years of age. Divergent movement ability was defined as children's capacity to modify, adapt and combine fundamental movement skills.

A convenience sample of forty-four boys and girls was selected. The children's background of movement experience was rated according to information provided on a questionnaire. The Test of Gross Motor Development (TGMD, Ulrich, 1985) was used to evaluate the subjects' level of motor performance. The dependent variable, divergent movement ability, was determined by the children's performance on three movement tasks. The TGMD and divergent movement tasks were videotaped and independently analyzed by two trained observers (Interrater Agreement = 87%). Content validated scoresheets were used to record the children's divergent movement responses. Reliability of the dependent measure was established by a test-retest procedure (r=.84, r=.76, r=.73; 4, 6, and 8 yr. olds).

A linear, age-related increase in children's divergent movement ability was demonstrated. Mean performances ranged from 43 divergent movement responses at the age of 4, to 56 at age 6 and 70 at age eight. A regression analysis was employed to determine the relationship of the independent variables, gender, experience, skill and age to divergent movement ability. Gender did not significantly contribute to the variance in children's divergent movement ability (R square=.00063). Experience alone accounted for 50%, adding skill increased this to 56% and including age increased the amount of variance accounted for to 68% (p<.0034). Based on this regression analysis, a relationship between age, experience and skill and divergent movement ability was demonstrated.

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BODY FIGURE PERCEPTIONS AND PREFERENCES AMONG PREADOLESCENT CHILDREN.

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The problem of this study was to determine and compare body figure perceptions and preferences among male and female preadolescent children. The study addressed questions of whether preoccupation with weight is evident early in childhood and whether preadolescent children consider thinness attractive in child and adult figures. A pictorial instrument illustrating weight ranging from very thin to obese among four sets of figures (boys, girls, men, women) was developed, reviewed, and modified for this study. The instrument was pilot-tested and examined for test-retest reliability and criterion-related validity prior to data collection. The instrument was employed in a cross-sectional survey conducted in seven elementary schools in two Indiana public school corporations, purposively selected to represent children from a broad range of school/community settings. The sample of 1,118 children completing the survey included male (51%) and female (49%), black (26%) and white (74%), first (32%), second(33%), and third (35%) grade children. In group settings of 15-25 students, subjects used the instrument to indicate perceptions of their own body figures and their preferences for ideal figures in male and female child and adult figures. Analyses of variance and t-tests were used to test hypotheses related to differences in figure selection by gender, grade, race, and school/community setting. Acceptable levels of reliability and validity were demonstrated for the pictorial instrument. Males and females chose similar middle-range figures as SELF, with males selecting a slightly thinner figure as IDEAL SELF. However, females selected IDEAL SELF figures significantly thinner than SELF, than boys' IDEAL SELF, and than boys' selection of IDEAL GIRL. A similar trend was noted in selection of adult figures. Black students made heavier figure selections than white subjects in all instances. However, females of both races expressed the preference to have thinner figures as children and adults. Conclusions suggested by the results of this study are disturbing. Preadolescent females mirrored the dissatisfaction with current body figure expressed by substantial numbers of adult and adolescent females. The preference for thinness among first, second, and third grade girls occurred across all levels of age, weight, race, and school/community setting. The results of this study suggest that the onset of disparate figure perceptions and expectations regarding thinness among females may be evident as early as six and seven years of age. Health education strategies may need to be addressed to this issue at earlier ages than believed heretofore.

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EFFECT OF WEIGHT LIFTING AND TREADMILL EXERCISE ON PLASMA VOLUME CHANGES. M.A. Collins, Kennesaw State College; M.A. Burleson, Jr., University of North Carolina at Greensboro; T. Triplett, T. Smith, and K. Allran, Appalachian State University.

Changes in plasma volume are important aspects of the cardiovascular response to exercise because thermoregulation, oxygen transport, and concentrations of some blood constituents are affected by plasma volume change. Therefore, the purpose of this study was to compare the plasma volume responses to weight lifting and treadmill exercise when performed at matched rates of oxygen uptake. Six males (mean (±SD) age=22.5 ± 1.4 yrs; height=170.7 ± 4.5 cm; weight=75.1 ± 10.1 kg) performed a 27-minute bout of weight lifting consisting of two circuits of eight exercises performed at 60% of each subject's one-repetition maximum with a work/rest ratio of 45 seconds/60 seconds. Approximately five days following the weight lifting each subject walked or jogged on the treadmill at a pace which elicited an oxygen uptake matched with his mean value during weight lifting. Plasma volume changes were determined from hemoglobin concentration and hematocrit using the method of Dill and Costill. The data were analyzed using t tests. A p-value of 0.05 was used for all significance testing. Mean oxygen uptake during weight lifting (1.50 l/min) and treadmill exercise (1.49 l/min) were not significantly ($p>.05$) different; therefore, the two activities were matched for rate of oxygen uptake. However, weight lifting elicited a significantly ($p<.05$) higher heart rate (140 versus 106 bts/min), respiratory exchange ratio (0.96 versus 0.77), ventilation (50.5 versus 34.3 l/min), and blood lactate (8.0 versus 0.8 mmol/l) than treadmill exercise. Mean (±SE) plasma volume change following weight lifting (-13.5 ± 1.9%) was significantly ($p<.05$) greater than following treadmill exercise (-5.6 ± 2.5%). In conclusion, weight lifting elicits a greater plasma volume change compared to treadmill exercise when the two activities are performed at matched rates of oxygen uptake and equal durations.

This study was funded by the University Research Committee, Appalachian State University.

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AN APPLICATION OF ITEM RESPONSE THEORY TO THE TEST OF GROSS MOTOR DEVELOPMENT.

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The purposes of this study were to (a) provide insight into the use of item response theory (IRT) with psychomotor skills and (b) assess the psychometric properties of the Test of Gross Motor Development (TGMD) (Ulrich, 1985) using IRT. The study employed data from 893 nonhandicapped and 20 mildly mentally handicapped children aged 3-10 years used by Ulrich in the original analysis of the TGMD. Because IRT cannot provide accurate estimates of ability for subjects displaying 0% or 100% mastery, data for 32 subjects (3.5%) were removed from the object control subtests separately to prevent violation of the IRT unidimensionality assumption. IRT difficulty (b) and discrimination (a) parameters and associated statistics were computed for items in each TGMD subtest using the PC-BILOG computer program (Mislevy & Bock, 1986). Based on the number of items revealing poor model fit (p) $<$ .05 using a chi-square goodness of fit test), the two-parameter logistic model (8 of 45 items revealed poor fit) provided a better fit to the data than the one-parameter model (27 of 45 items revealed poor fit). The locomotor subtest was less difficult (median b = -.944) than the object control test (median b = .053) while the object control test (median a = 2.17) displayed greater discriminatory power than the locomotor subtest (median a = 1.534). Analysis of subtest information functions revealed that the locomotor subtest measured most precisely at a low ability level (theta = -1.857 or a true score of approximately 8 of 26 items), while the object control subtest provided the most precise measurement at a slightly higher ability level (theta = -1.643 or a true score of approximately 9 of 19 items). All items of the hop, leap, and overhand throw evidenced acceptable IRT psychometric properties, while the following items in the remaining 9 skills revealed inadequate psychometric properties and should be reevaluated (items in parentheses): run (1, 3, 4); gallop (6, 8); horizontal jump (18); skip (20); slide (all); strike (27, 26, 29); stationary bounce (32); catch (34, 35); and kick (38). The results of this study provided (a) evidence that the IRT two-parameter logistic model affords an effective psychometric analysis of dichotomously scored psychomotor skills provided that data meet the strong assumptions of IRT and (b) a psychometric foundation for exploring test equating, test bias, and adaptive testing using the TGMD.

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CONTEXTUAL INTERFERENCE EFFECTS ON TRANSFER AND RETENTION OF GOLF PUTTING SKILLS BY ADOLESCENTS WITH MODERATE MENTAL RETARDATION.

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Contextual interference (CI) is one aspect of motor learning which seems to influence transfer and retention, but CI research with moderately mentally retarded (MMR) individuals has been limited. The purpose of this study was to investigate the effects of CI on transfer and retention of golf putting skills by MMR high school students (16-21 yrs.). Twenty MMR subjects were placed equally into a blocked or random practice group to acquire the golf putting skill. Blocked practice (low CI) consisted of 18 consecutive putts from one of 14'9", 19'8", and 24'7" in each session. Random practice (high CI) included six putts from each of the three distances in a random order. For both groups, a total of 60 putts were performed at each putt length before transfer. Transfer was measured by six putts at each of 9'10", 21'4", and 29'6" performed in a random order immediately following the last practice trial. Retention was measured by six trials of the three original putt lengths, performed randomly 14 days after the last practice session. Accuracy scores were converted to AE and VE scores for data analysis in blocks of six trials. A 2X3 split plot design ANOVA was employed to analyze AE and VE for the transfer and retention trial blocks, utilizing the last block of acquisition trials, and the transfer and retention trial blocks as levels of the repeated factor. Few significant differences in VE were revealed in statistical analysis of transfer and retention, probably due to the large variability in performance within each group evidenced by the large standard error in the scores. The findings of this study indicate that for the short putt the random group performed significantly better (AE) on both transfer and retention than on acquisition. For the medium putt, the blocked had significantly less AE on transfer than the random group which suggests that MMR students may transfer a skill better in terms of accuracy after a blocked practice schedule. Also, the blocked group showed less AE on transfer than retention, suggesting greater accuracy on transfer to a new variation of the skill than on retention of the same skill. On this more difficult task (longer putt), subjects did not perform as accurately on transfer to a new variation of the skill as they did on retention of the original skill. These data indicate the CI schedule should be considered when planning for transfer and retention, but the choice of practice schedule appears to be related to the difficulty of the task.

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Modifying Perceptions of Elementary Classroom Teachers Concerning Physical Education. Ray T. Cool, University of Louisville.

The elementary classroom teacher is required to teach a variety of subjects. The professional preparation this population experiences correspondingly must include many subjects. Preparation in so many areas, coupled with time constraints faced in all academic professional preparation programs, creates a situation that may seem lacking (quantity wise) in some content areas. The physical education professional preparation for the elementary classroom teacher is often such. This limited preparation contributes to the elementary classroom teacher's preception of their ability to teach physical education as: 1.) leaders and managers of games, 2.) possessing deficiencies in their qualifications to teach the subject, 3.) resigned doers of physical education and 4.) not viewing physical education as a priority subject (Cundiff, 1987). The purpose of this study was to ascertain if the perceptions of classroom teachers towards physical education could be modified by pedagological presentation highly affective in content. The subjects for this study were 92 elementary education majors enrolled in Physical Education for the Classroom Teacher taught during the Spring and Summer semesters of 1989 at the University of Louisville. The subjects completed three questionaires prior to the start of the course and a parallel form of the questionaire upon completion of the course. The questionaires evaluated the following: 1.) comparative ranking of subjects by importance, 2.) characteristics of a physical education program and 3.) individual ability and willingness to teach physical education. The students were instructed in the methodology of teaching a variety of physical education activities during the class. In all activities a highly affective theme emphasizing the importance of physical education was incorporated. The concept that an individual need not be an expert to teach physical education activities but more importantly understand critical teaching components of an activity was also emphasized. The results of this study indicated the following: 1.) the status of physical education as a priority subject did not improve, 2.) a significant change in what classroom teachers believed as the important characteristics of a physical education class did occur, 3.) the classroom teachers self preceived ability to teach physical education improved slightly while their willingness to actually teach physical education increased significantly.

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CORRELATES OF EARLY SEXUAL INVOLVEMENT.

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The purpose of this study was to identify correlates of participation and expected participation in sexual intercourse among a population of early adolescents. Teen pregnancy and other problems associated with adolescent sexual activity are apparent even among younger teens. To address these problems, a number of agencies have developed programs to discourage teens from participating in sexual intercourse. In addition the Office of Adolescent Pregnancy Programs (OAPP) has funded educational projects which have as their goal "the postponement of adolescent sexual involvement." To develop effective programs it is first important to identify factors which might be expected to influence early sexual involvement. Then programs can be developed which target these factors. Thus this study, which was part of an OAPP funded project, was undertaken. Subjects: Seventh and eighth grade students from four different junior high schools participated in the study. Written parental permission was required for participation. Student participation rate was approximately 93 percent. Testing Instrument: The evaluation instrument was an 83 item questionnaire which included the Hare Self-Esteem Scale, a 20 item knowledge test, a number of attitudinal items as well as questions dealing with sexual behavior and behavioral intentions. Many of the items were from the instrument Kirby used in his national study. Procedure: Students completed the questionnaire in a regular classroom setting. Researchers read questionnaire items aloud as students followed along in their test booklets. Student questionnaires were grouped upon subject responses to the three sexual behavior and three behavioral intention items. Data were analyzed using SAS programs PROC GLM and Proc Means. Results indicated that the following factors were statistically significant ($P<05$) across all six behavior and behavior intention variables: home self-esteem, school self-esteem, attitudes toward sex and marriage, view of abstinence, satisfaction with current sex life, view of others' sexual behavior, and comfort in talking to boyfriend or girlfriend about sexual issues. Decision making was significant for all three behavioral intention variables as well as the behavior item indicating current status. Knowledge was significant for all three behavioral variables as well as the item "intent to have intercourse within the next year." These results should be considered by persons working with young people and parents in the area of sexuality education and especially by those developing sexual postponement materials.

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COMPARISON OF THE VALIDITY OF THE 12-MINUTE SWIM AND RUN AS FIELD TESTS OF MAXIMAL AEROBIC POWER IN YOUNG MEN.

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The 12-minute run is widely used as a field test to classify maximal aerobic power, and it has been suggested that the 12-minute swim can also be used for this purpose (Cooper, K. The Aerobics Way, 1977, p. 91). However, the 12-minute swim has not been validated using maximal aerobic power ($\dot{V}O_{2peak}$) as the criterion. The purpose of this study was to compare the validity of the 12-minute swim and run as field tests of maximal aerobic power ($\dot{V}O_{2peak}$). Thirty-six male recreational swimmers (mean (± SD) age = 22.0 ± 2.9 y, height = 178.3 ± 5.5 cm, weight = 73.1 ± 6.9 kg, and % fat = 15.1 ± 3.9) completed 12-minute swim and run tests, and tethered swimming and uphill treadmill running $\dot{V}O_{2peak}$ tests within a 3-week period. Mean (± SD) 12-minute swim and run distances were 581 ± 88 amd 2797 ± 290 m, and mean tethered swimming and treadmill running $\dot{V}O_{2peak}$, values were 50.3 ± 6.2 and 57.2 ± 5.5 $ml \cdot kg\ BW^{-1} \cdot min^{-1}$, respectively. Correlation coefficients and standard errors of estimate from predictions of tethered swimming $\dot{V}O_{2peak}$ from the 12-minute swim (.40 and 5.7 $ml \cdot kg\ BW^{-1} \cdot min^{-1}$), of treadmill running $\dot{V}O_{2peak}$ from the 12-minute swim (.38 and 5.1 $ml \cdot kg\ BW^{-1} \cdot min^{-1}$), of treadmill running $\dot{V}O_{2peak}$ from 12-minute run (.88 and 2.6 $ml \cdot kg\ BW^{-1} \cdot min^{-1}$), and of tethered swimming $\dot{V}O_{2peak}$ from the 12-minute run (.74 and 4.2 $ml \cdot kg\ BW^{-1} \cdot min^{-1}$) indicated that the 12-minute run was a more valid predictor of maximal aerobic power than the 12-minute swim regardless of whether $\dot{V}O_{2peak}$ was measured during running or swimming. It was concluded that unlike the 12-minute run, the 12-minute swim does not have acceptable validity as a field test of maximal aerobic power in young male recreational swimmers.

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EFFECTS OF DIFFERENT FREQUENCIES OF AEROBIC DANCE ON OXYGEN UPTAKE, BODY COMPOSITION, AND SELF-CONCEPT. Patricia Thomas Cox, The Cooper Clinic and Robert Boling, Mississippi State University.

The purpose of this study was to determine the effects of performing aerobic dance of equal intensity and duration at frequencies of two and three times a week on three dependent variables: (a) oxygen uptake, (VO_2 max), (b) percent body fat, and (c) self-concept. The subjects in this study were nineteen female volunteers ranging in ages from 22 to 41 years and were assigned to Group I (control group), Group II (aerobic exercise frequency twice weekly), or Group III (aerobic exercise frequency three times weekly) for a fourteen-week exercise training period. Subjects were judged healthy, inactive females who were not physically active for at least six weeks prior to the beginning of the study. Dietary intake of the subjects was not controlled. Participants were instructed not to alter their previous eating habits. Pre and post-data for each subject were obtained from a maximal graded exercise test (Balke Standard Treadmill Test), hydrostatic weighing to estimate percent body fat, and six scores on the Tennessee Self-Concept Scale. ANOVA was used to analyze the data. Compared to the control group, both training groups improved significantly ($p < .05$) in VO_2 max and in the reduction of percent body fat. There were no significant gains when comparing the two training groups to each other. Dependent t-tests showed significant improvement in VO_2 max and percent body fat in both exercising groups. Neither group improved significantly on any of the scores of the Tennessee Self-Concept Scale when compared to the control group. The group exercising twice weekly exhibited no improvement in self-esteem when comparing pre and post-scores. The group training three times per week showed improvement on all six scores of the Tennessee Self-Concept Scale from a dependent t-test. The implications of this study suggest that performing aerobic dance twice per week is sufficient to produce improved efficiency of the oxygen transport system and reductions in percent body fat. To produce noticeable improvement in self-concept, it seems that a frequency of exercise of at least three times per week and or a training program of several months would be necessary.

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A COMPARISON OF DISABLED AND ABLE-BODIED ATHLETES RELATIVE TO SELECTED MOOD STATES.

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The purpose of this study was to determine if a relationship exists between selected psychological variables and physical disability. Subjects for this research were 24 male and 25 female able-bodied intercollegiate track athletes and 21 male and 10 female elite wheelchair athletes preparing for international competition (Seoul Paralympics). The wheelchair athletes were training to compete in six different athletic activities (air rifle, archery, track and field, swimming, table tennis and weight lifting). The disabled subjects had a variety of lower limb impairments resulting from spinal cord injuries, amputations, or polio.

Mood states of all subjects were ascertained through the administration of the Profile of Mood States (POMS) and the Eight State Questionnaire (8SQ). The POMS provided a measurement of tension, depression, anger, vigor, fatigue, and confusion, while the 8SQ measured the mood states of anxiety, stress, depression, regression, fatigue, guilt, extraversion, and arousal. In addition, three inventories designed to measure state and trait anxiety were administered to the subjects. These three tests included Spielberger's state and trait inventories of anxiety and Martens' Sport Competition Anxiety Test (SCAT).

A disability by gender (2 X 2) multivariate analysis of variance (MANOVA) resulted in significant main effects for disability, $\underline{F}(17,62) = 2.71$, $\underline{p} = .002$, and for gender, $\underline{F}(17,62) = 1.92$, $\underline{p} = .033$. The interaction between disability and gender was not significant at the .05 level. Significant univariate differences were observed between the disabled and able-bodied athlete for state and trait anxiety; for depression, anger and confusion on the POMS inventory; and anxiety, stress, depression, regression and guilt on the 8SQ inventory. Anxiety and mood state scores were higher for the able-bodied athlete as compared to the disabled athlete. None of the univariate comparisons for gender reached significance at the .05 level.

The results of this investigation revealed that elite world class disabled wheelchair athletes exhibit superior mood state and anxiety profiles when compared with a group of Collegiate Division I track athletes. While physically disabled, the elite wheelchair athlete is not handicapped psychologically. To the contrary, the disabled athlete enjoys a psychological profile that is consistent with Morgan's notion of the "mental health model."

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ASSESSMENT OF MOVEMENT CONFIDENCE; RESPONSES OF ELEMENTARY SCHOOL CHILDREN TO TWO DIFFERENT INVENTORIES. Michael E. Crawford, University of Missouri, Norma S. Griffin and Nancy A. Ray, University of Nebraska.

The purpose of this study was twofold; (1) To test via replication the validity/reliability of previous work reported on the Playground Movement Confidence Inventory (PMCI) (Crawford and Griffin, 1986) and the Stunt Movement Confidence Inventory (SMCI) (Griffin and Crawford, 1989), and (2) to extend this research through specific hypothesis testing. A direct comparison of these two inventories with the same sample has never been achieved. Separate validation studies have generated questions regarding the existance of possible response biases based on gender and task conditions. Since the identification of the low confidence/high risk child is the goal of inventory development resolution of these questions is essential if effective application to pedagogy is to be achieved. A gender balanced sample of fifth grade children (N=98) provided test-retest responses for both protocols. Subject reactivity was controlled for by collecting test-retest data for each inventory within 2 weeks and allowing 60 days delay between forms. Analysis of results included; (1) Calculation of test-retest and alpha coefficients, and ANOVA contrasts for direct comparison to previous studies values for test performance, (2) An empirical test for response differences between forms through SPSSx crosstabs to identify and track low confidence children (determined by responses to the dependent variables experience and confidence with task) in conjunction with the Chi Square statistic and qualitative analysis of responses to the independent variables of harm, enjoyment, and competence, and (3) Analysis of gender differences was achieved through the use of ANOVA. Results coroborated previous validation work regarding psychometric consistency for both inventories; subscale Alphas $> .7$ (with one exception), test-retest $r > .8$, and subject stability $R=.9$. Six children shifted from high confidence on the PMCI to low confidence on the SMCI with corresponding and significantly different response profiles (higher harm and lower competence and enjoyment on the SMCI). No gender differences were found within or across inventories. Both inventories were found to be psychometrically stable and gender neutral. However differences in self-ratings across forms indicate that SMCI tasks hold greater challenge. These findings suggest that the confidence construct is situationally driven and that instructional attempts to identify the low confidence child may need to be tailored to specific movement demands.

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A DEVELOPMENTAL ANALYSIS OF COMPETITIVE ORIENTATION IN TEAM SPORTS AND INDIVIDUAL SPORTS.

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The purpose of this study was to examine differences in perceived physical competence, perceived control, and motivational orientation between males at three different competitive levels, in team sports and individual sports. The subjects in the study were 906 male athletes randomly selected from 56 different schools. All subjects completed the Sport Orientation Questionnaire (Gill & Deeter, 1988), the physical scale of the Perceived Competence Scale for Children (Harter, 1982), and a modified version of the physical scale from the Multidimensional Measure of Children's Perceptions of Control (Connell, 1985). The data were analyzed using a 3 x 2 (competitive level x setting) multivariate analysis of variance with follow-up univariate F-tests, post-hoc Tukey tests and discriminant function analyses. Males competing at the varsity high school level reported significantly higher levels of motivation to compete, win and pursue individual goals than males competing at the junior high level. Males at the varsity level also reported significantly higher perceptions of physical competence, and significantly lower levels of unknown control. Differences in setting occurred at the non-varsity high school level, with males competing in team sports reporting a significantly higher level of motivation to compete and win, and higher perceptions of physical competence than males competing in individual sports. At the varsity level males competing in individual sports reported higher levels of motivation to pursue personal goals than males competing in team sports. The variables significantly predicted group membership as a team or individual sport competitor, and as a junior high, non-varsity high school, and varsity high school competitor. Athletes who persist in competitive sport to the varsity high school level have higher levels of motivation to compete, win and pursue personal goals, higher perceptions of physical competence, and lower levels of uncertainty about what controls their performance than athletes at lower competitive levels. Results confirm important relationships between persistence in sport and motivation, perceptions of competence, and perceived control. The results also suggest that significant developmental differences may exist between team and individual sport settings, which should be taken into consideration by coaches and administrators.

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The Reliability of four Measures of Cardiovascular Fitness in Adults with Mental Retardation

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The purpose of this investigation was to determine the test-retest reliability of four submaximum oxygen uptake (VO_2) test protocols: (a) Modified Physical Working Capacity Cycle Ergometry, (b) Balke Ware Treadmill, (c) Canadian Step Test, and (d) Cooper Twelve-Minute Run/Walk in predicting the cardiovascular fitness of adults with mental retardation. The subjects were employed in a sheltered workshop setting (N=17, M age= 35 years, MIQ=54). The four submaximal VO_2 tests were administered over eight sessions with test-retest reliability scores determined by administering each protocol separately and 1 week apart. An intraclass correlation coefficient revealed the following scores on each of the four protocols: Modified PWC Cycle Ergometry, R=.64; Balke Ware Treadmill, R=.93; Canadian Step Test, R=.95; Cooper Twelve-Minute Run/Walk, R=.81. Discussion includes considerations for administering predictor VO_2 tests with persons who are mentally retarded. In this particular investigation The Balke Ware Treadmill Test (R=.93) and the Canadian Step Test (R=.95) revealed the highest reliability scores.

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THE ROLE OF PREPARATION ROUTINES IN GOLF PERFORMANCE.

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A series of four studies were designed to assess the effects of a specified preshot routine on golf performance. The first study was a descriptive assessment of LPGA players and their use of a consistent preshot routine. The results indicated that the players who were performing better also displayed reduced variability in both their behaviors and in the total time period of their routine. Study 2 assessed whether collegiate golfers who established a consistent putting routine would improve putting performance over a control group which simply practiced putting. Although total routine time increased there was a reduction in variability. The female putters improved putting performance while the male and control subjects showed a performance decrement. In Study 3 beginning golfers were introduced to a preshot routine and practiced the routine over an 8 wk training session. Control subjects simply practiced with no routine for the same period of time. Trained males illustrated higher posttraining performance scores than controls or trained women. These males displayed higher skill levels before and after training. Perhaps skill level needs to be at an advanced beginning level before the preshot routine is beneficial. Finally, psychophysiological indicators of attentional focus (heart rate and respiration) were assessed during the preshot routines of 34 elite golfers. The best five putters displayed their dominant respiration pattern (inhalation or exhalation) over a greater percent (*M* = 74.5%) of the 80 putting trials than the worst five putters (*M* = 64.2%), monetary incentive was provided for 40 of the 80 trails. The best five putters also exhibited a more consistent heart rate pattern in the incentive condition. A greater percent (*M* = 74.2%) of the trials followed either an acceleration or deceleration pattern, while the worst five putters showed slightly more variability (*M* = 69.2%). However, the worst five putters were less variable than the best performers in the nonincentive condition (worst, *M* = 72%, best, *M* = 62.8%). It appears that preshot routines facilitate consistency in behavioral patterns and possibly an improvement in performance for players who are beyond the beginning level of skill development. Further research is needed to assess the psychological and psychophysiological patterns which accompany the consistent behavioral routines of elite performers.

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EFFECTS OF EXERCISE AND DIET ON BODY COMPOSITION AND CARDIOVASCULAR FITNESS IN MENTALLY RETARDED ADULTS.

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The present study evaluated the effects of an aerobic fitness program and dietary intervention with external control components (verbal reinforcement and token economy system) on three obese adults with severe mental retardation. Intervention treatment consisted of a 500-kcal daily reduction in diet under that required to maintain present body weight seven days per week and a one-hour aerobic exercise program five days per week. A multiple-baseline-across-subjects design was employed to evaluate treatment effectiveness on three dependent measures: aerobic capacity (predicted max VO_2), body weight, and percent body fat (skinfold measures). Additional subject data were gathered on percent increases for each of the dependent measures. A visual inspection of the data, and a split-middle technique statistical analysis ($p < .05$) indicated that subjects improved from their baseline scores on all measurements. Subjects' mean body weight and percent body fat decreased 7.73% and 19.31% respectively; mean max VO_2 increased 29.8%. Results indicated that adults with severe mental retardation respond to a program of progressive aerobic exercise (e.g., brisk walking, jogging, or bicycling) and caloric restriction much the same way as their nonretarded peers. It is highly recommended that professionals involved in developing weight loss programs for the mentally retarded, in addition to dietary restrictions, incorporate exercise as a major component of intervention. Future research should focus on whether participants can generalize learned exercises to group fitness programs and whether exercise maintenance can occur after direct intervention is terminated.

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PHYSIOLOGIC AND BIOCHEMICAL CHARACTERISTICS OF FEMALE COLLEGIATE BASKETBALL PLAYERS COMPARED TO NONATHLETES.

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The sports literature is replete with reports characterizing male athletes, yet a paucity of comparable information exists for women. The present study was designed to: (1) characterize elite female intercollegiate basketball (BB) players (n=15) engaged in early season training with respect to physiologic and biochemical factors related to sports performance and health; and (2) to compare their profiles to those of noncompetitive age-matched controls (CN; n=22). The BB players were taller (178 vs 165 cm) and heavier (73 vs 59 kg) than CNs, but similar in age (19 vs 20 yrs). Seven factors were selected to characterize the women which included: (1) the Margaria-Kalamen anaerobic power test (MK); (2) aerobic power (VO_2max) measured via treadmill and computerized metabolic cart; (3) percent body fat (FAT%) assessed using the hydrostatic technique; (4) nonfat body weight (NFAT) calculated from FAT%; (5) high-density lipoprotein-cholesterol (HDL-C); (6) serum ferritin (FERR) to evaluate iron status; and (7) serum creatine (CRE) as an index of training-related muscle damage. Data analysis using a two-sample Hotelling's T^2 with 7 dependent measures indicated a significant multivariate effect ($F_{(7,24)} = 14.51$; $p < 0.0001$). The group means ($\underline{+}$ SEM) and the results of follow-up procedures are shown in the table ('*' denotes significant difference; alpha < 0.05).

	FACTOR CHARACTERISTIC						
GROUP	MK (kg.m/s)	VO_2max (ml/kg/min)	FAT% (%)	NFAT (kg)	HDL-C (mg/dL)	FERR (ng/ml)	CRE (mg/dL)
BB	1128*	43.9	19.4*	58.7*	61.3	38.0*	1.04
	(48)	(1.6)	(1.5)	(1.7)	(2.6)	(6.1)	(.04)
CN	730	39.4	23.2	45.1	62.6	18.4	0.97
	(23)	(1.0)	(0.9)	(0.9)	(2.2)	(4.7)	(.02)

These data serve to characterize female collegiate BB players and demonstrate that these athletes are able to generate significantly more anaerobic power, and have less body fat and more non-fat body mass than age-matched CNs. In contrast, their aerobic power and levels of the antiatherogenic cholesterol, HDL-C, were not elevated. In 13 out of 15 BB players, serum FERR concentrations were within clinically accepted ranges (>20 ng/ml), and the average FERR for these athletes was higher than for the CNs. However, two of the athletes evidenced low FERR levels consistent with iron deficiency, and were subsequently placed on iron therapy. Thus, regular assessment of iron status in female BB players may be warranted.

(Supported in part by Scott and White Clinic and Texas A&M University)

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DETERMINATION OF THE AEROBIC FITNESS VALUE OF SELECTED PHYSICAL EDUCATION ACTIVITIES.

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Numerous investigators have observed that youth fitness levels are on the decline. While the validity of these observations is a subject of some discussion, little has been done to objectively determine if activities conducted in typical physical education classes are vigorous enough to improve aerobic fitness levels. The purpose of this study was to test two typical physical education activities to determine if they met duration, intensity and energy expenditure guidelines (ACSM) for improving aerobic fitness. Nine female subjects, ages 14 to 16, had data collected in 1) laboratory testing and 2) field testing during six typical physical education (3 basketball and 3 floor hockey) classes. Laboratory data included VO_2, RER and heart rate (HR) throughout a multi-stage cycle test to voluntary exhaustion. Laboratory measured VO_2 was regressed on HR to allow estimation of aerobic demand for each subject from HRs monitored during field testing sessions. HRs were continuously measured during physical education classes and oxygen consumption estimated from equations generated with laboratory data. Energy expenditure was estimated using a constant of 4.875 (Kcals/l) during exercise and 4.739 during inactive minutes. Results indicated that although physical education classes were in excess of 45 minutes duration, subjects actually participated an average of 22.3 minutes during basketball and 18.3 minutes during floor hockey. Further, subjects were active at an intensity greater than 50% of their VO_2 max for an average of only 14.9 minutes during basketball classes and 9.8 minutes during floor hockey. Total energy expenditure during the classes averaged 187 Kcals per class period during basketball and 152 Kcals per class period during floor hockey. Based on this research, it appears that aerobic fitness may not be improved by participation in typical class activities. This research has implications for curriculum planners who develop health-related fitness for school children.

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ASSOCIATION OF PERCEIVED SUSCEPTIBILITY, BENEFITS, BARRIERS, PHYSICAL SELF-EFFICACY, AND HEALTH LOCUS OF CONTROL WITH FOUR CHD RISK FACTORS.

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This investigation explored the relationship between individual beliefs and several CHD risk factors including serum cholesterol, percent body fat, and fitness level (METS). While the Health Belief Model inventory (HBM) has been found to be an adequate predictor of exercise in a college student sample, this study sought to examine its utility with an adult worksite population. The HBM in combination with the Physical Self-Efficacy Scale (PSES) and the Health Locus of Control Scale (HLC) were utilized. Data were collected from 66 of 95 (70%) male employees from the Iowa Department of Transportation Motor Enforcement Division who received a physical examination and stress test from the University Fitness Clinic. The 40-item HBM inventory represented a hypothetical structure consisting of five factors labeled Susceptibility, Benefits, Barriers, Social Influence, and Cues to Action. Alpha coefficients were .80 or higher for the factor scores with the exception of the .68 value for the four item, cues factor. Alpha coefficents for the PSES and HLC were .75 and .62 respectively. Canonical analysis was then used to determine whether attitudes were related to physiological indicators of fitness. The first canonical correlation was .64 (R^2=.41) and the second .43 (R^2=19). Wilks Lambda (.477) for an approximate F=1.72 ($p<.02$). These findings suggest that there is a constellation of attitudes which are related to physiological outcomes. In essence, there does seem to be support for the idea of attitudes as an ingredient in predicting future outcomes. The strength of the second canonical function, however, suggests that there is a more complex relationship. Inspection of correlations between attitudinal indicators and canonical variables reveals cues to action (.78) and benefits (.51), to have the highest association with physiological outcomes. Since these were not the strongest predictors for groups previously studied, data suggest that this group maybe unique. While these findings can be interpreted to support an attitudinal component to a healthy lifestyle, it appears that other factors such as occupational restrictions may inhibit or restrict the decision-making process. In this case, it appears that decisions have been made and we are measuring residual attitudes which reinforce an individual's self-definition.

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RESULTS FROM THE CHOLESTEROL SCREENING AND HEALTH RISK APPRAISAL AT THE 1988 OAHPERD CONVENTION.

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The purpose of this study was to assess whether or not those individuals who are involved in physical and health education programs had cholesterol values which have been recommended by the National Cholesterol Education Program. (NIH Publication No. 89-2925, January, 1989). This screening was also completed to recommend a fasting blood lipid profile for those individuals above the "desirable" level of 200 mg·dl^{-1}, and to educate the participants about health habits and implications. One hundred and thirteen attendees [male (M)=47 (42%); female (F)=66 (58%)] of the 1988 OAHPERD convention in Toledo, Ohio, were screened for total blood cholesterol (CHOL) and completed a State of Ohio, Health Risk Appraisal (HRA) questionnaire. CHOL was determined from plasma samples collected in hepranized tubules after a finger prick. Ten microliter samples were analyzed using a previously calibrated Kodak DT 60 dry reagent spectrophotometer. The mean values for the total group were: age, 39.7 ± 11.4 yr; height, 67.4 ± 4.0 in; weight, 163.4 ± 32.4 lb; CHOL, 201 ± 36.5 mg·dl^{-1}; HRA-WS (wellness score out of 100), 88.6 ± 10.2. Mean values by gender were: M-age, 40.5 ± 11.0 yr; F-age, 39.1 ± 11.9 yr; M-height, 70.8 ± 2.1 in; F-height, 64.8 ± 3.0 in; M-weight, 188.7 ± 25.3 lb; F-weight, 145.5 ± 23.6 lb; M-CHOL, 206.7 ± 41.2 mg·dl^{-1}, F-CHOL, 196.9 ± 32.5 mg·dl^{-1}; M-HRA 85.7 ± 12.3, F-HRA, 90.7 ± 7.7. The group CHOL mean was within the "desirable" range, as were 61% of the F-CHOL and 49% of the M-CHOL. Those individuals with levels above 200 mg·dl^{-1} were advised to see their physician to have a repeat test. When gender differences were examined, the M-CHOL mean was slightly higher than "desirable;" however, there was no significant difference (t-test; $p \leq .05$) between the M-CHOL and F-CHOL. There were no significant differences (t-test) between the genders for any HRA scores (actual, appraised, achievable ages) except for the HRA-WS. For the group, CHOL was significantly correlated (Pearson r) to actual age but not to the HRA-WS. CHOL was correlated to HRA-WS for women but not for men. Measurement of CHOL and HRA responses and communication of results serve as a reminder to participants that many factors need to be considered when determining the risk associated with coronary heart disease.

(Supported in part by Roche Laboratories, Kodak, and the School of HPER of Bowling Green State University)

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SPECIFIC SEX EDUCATION TOPIC INSTRUCTION TIME.

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The purpose of this study was to investigate the amount of time spent teaching selected sex education topics in public schools. The topics investigated were anatomy and physiology, pregnancy, contraception, sexually transmitted disease, (STD) decision making, and relationships. A ten percent proportionate stratified random sample technique was utilized to choose subjects. The existing Illinois State High School football classification system served as the stratification vehicle. The appropriate number of high schools were randomly selected from each class (1A-11, 2A-8, 3A-8, 4A-8, 5A-10, 6A-9). After selection, schools that fed students (elementary, middle school, jr. high) into each high school were included in the sample. Schools selected, per class, were: 1A-21, 2A-32, 3A-35, 4A-50, 5A-85, and 6A-119. The total number was 342. Out of this total figure, 267 or 78% returned questionnaires. Responding schools were instructed to indicate the amount of instruction time for each selected topic per grade level (K-3, 4-6, 7-8, 9-12, and special education-SPED). Categorization by grade level yielded 525 cases (K-3=197, 4-6=207, 7-8=78, 9-12=32, and SPED=11). Total mean hours per topic were: anatomony and physiology-2.11, pregnancy-.726, contraception-.837, sexually transmitted disease-1.18, decision making-6.18, and relationships-4.76. A one way ANOVA was used to compare the amount of instruction time per topic for class (1A, 2A, 3A, 4A, 5A, 6A) and grade (K-3, 4-6, 7-8, 9-12, SPED). Significance (pc.05) was found for anatomy and physiology, pregnancy, contraception, sexually transmitted disease, decision making, and relationships. A Tuckey HSD test was utilized to compare significant means. Although significance was found in a number of areas, it was noted that total mean hours of instruction per topic was minimal throughout both school size and grade level (total x =4.90 hours). This investigation suggests that very little instruction time is devoted to formal sex education in Illinois public schools.

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FACTORS THAT INFLUENCE KNOWLEDGE ABOUT AIDS AMONG UNIVERSITY STUDENTS.

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Some research studies have measured AIDS knowledge among university students in Louisiana. The variables of sex and race in those studies have been investigated as possible influences. These studies have been primarily discriptive and tests for significance were noticably absent. Additionally, the influence of such variables as age, marital status, and educational classification were not found in the literature. The purposes of this study were to measure university students' knowledge of AIDS and to assess the impact of various demographic variables on their scores. Four hundred fifty-seven modified Knowledge, Attitues, Beliefs, and Behaviors (KABB) Core Questionnaires were administered to students at a southwest Louisiana university and 448 usable answer sheets were scanned. The questionnaire consisted of 40 items. Twenty-nine items surveyed knowledge about AIDS by utilizing the true/false/dont't know answer format. Our respondents were generally well informed about AIDS, 80% correct ($\bar{x} = 23.05$). Most students (≥94.4%) knew that AIDS patients could not be detected by looks, and that AIDS could not be contracted by 1) working with someone with AIDS, 2) shaking hands, or 3) from other students in class. There was general awareness (≥94.4%) that AIDS could be transmitted by sex and sharing needles. Fewer students (≤70%) knew that the blood supply is relatively safe from HIV infection, and that AIDS could not be transmitted by saliva or by mosquito bites. Substantially few students (13.4%) in our sample knew of the prophylactic benefit of spermicides. Significantly better scores were noted amount upperclassmen when complared to freshmen. Students 22 years of age scored significantly higher than their younger counterparts. No significant differences were noted for race, sex, or marital status among our respondents. The fact that our older upperclassmen students demonstrated more knowledge about AIDS, coupled with the relatively high over all scores, suggest that academic preparation at a university and maturity play important roles in aquisition of information about AIDS. More effective ways of dissemination and information on the transmission of the HIV virus and the prophylactic benefit of spermicides need to be implemented.

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VALIDATION OF DYNAMIC BALANCE MEASURES FOR SEVERE LEVELS OF MENTAL RETARDATION

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Since the mid 1900s there have been approximately 200 investigations of balance without one examining performance of individuals with severe or profound mental retardation. It was the purpose of this investigation to provide a reliable and valid measure of dynamic balance for individuals with IQs below 29. One hundred and two residents of a 3,000 resident Developmental Center were randomly selected as subjects. Sixty-nine of the subjects were identified as having profound mental retardation and 33 subjects were identified as having severe mental retardation. Chronological ages of subjects ranged from 24 to 61 years with a mean age of 35. Seventy-five of the subjects were males and 27 were females. All 102 subjects were asked to complete the Papcsy Test and the Bruininks Test by walking on beams according to each test's protocol. Two test administrators and one recorder established 100% interrater reliability. Correlations of odd-even scores produced a reliability measure of $r_{xy}=.99$ for the Papcsy Test. However, because 50 subjects scored 0, and forty two subjects scored only 1 on the Bruininks Test, concurrent validity could not be computed. All further analyses were done using the Papcsy Test data. With exception to level of retardation, age and sex produced extremely low correlations. In fact, a follow-up t-test provided evidence of a significant difference in balance performance between levels of retardation ($t=5.73$,df101,$p < .001$). Cognitive ability appeared to be the only influential factor affecting balance performance. The Papcsy Test is the first to provide reliable and valid dynamic balance criteria when examining individuals with severe or profound retardation.

THE EFFECTS OF PLAYING AND TEACHING EXPERIENCE ON ABILITY TO PERFORM A DIAGNOSTIC TASK.

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The purpose of this study was to determine the influences of playing and teaching experience on an individuals ability to report errors in a tennis serve. Thirty-six subjects were selected based on teaching and playing experience: high playing/high teaching (tennis pro), high playing/low teaching (advanced tennis player), low playing/high teaching (physical education teacher) and low playing/low teaching (undergraduate P.E. major). The four groups viewed videotapes of a tennis serve and were asked to identify errors and feedback. The tape conditions included three beginning and three advanced tennis serves. Verbal reports were audiotaped. Errors and feedback were transcribed from the protocols. The design of the study was a 2 (playing experience) X 2 (teaching experience) X 2 (tape conditions) with repeated measures on the last factor. ANOVAs were calculated for the following dependent variables: number of chunks, number of bits, cause-effect statements, multiple cause-effect statements, types of errors, amount of feedback and trial frequencies. The chunking percentage analysis revealed that both high playing and high teaching experience groups were able to report significantly more abstract errors than the low experience groups. The one-link and multiple link analysis showed that the high play/high teach experience group was very different from all the other groups. They had more causal statements of errors for both the one and multiple link categories which suggests a more complex error report. The types of error analysis revealed that all four groups used the toss, feet/legs, preparation, and timing categories when the six most used categories were rank-ordered. The high playing experience and the high teaching experience groups had identical categories with reversal of the power and contact categories. The low playing experience group used racquet arm and follow-through while the low teaching experience group used contact and racquet arm. The balance category was the only category that demonstrated significant differences between playing and teaching experience. The high playing/high teaching group used the balance for the beginning tape condition while the advanced tape condition was similar for all other groups. Feedback statements revealed that the physical education teachers used the part method of teaching while the other four groups used the whole method almost exclusively. Both playing and teaching experience influenced the way individuals perceive errors.

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HEART RATE AND VO_2 RELATIONSHIP DURING LOW-IMPACT AEROBICS.

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The popularity of low-impact aerobics (LIA) has continued to increase due, in part, to the reduced stress placed on the lower extremities. However, in order for LIA to sufficiently elevate the heart rate (HR), it is often necessary to combine leg activity with vigorous arm activity. Whether or not the elevation of the HR due to the arm activity proportionately increases the VO_2 has been questioned. The purpose of this study was to compare the HR achieved at an equivalent VO_2 while doing only leg activity (walking) and walking plus typical arm activity used in LIA. Twenty college-age female volunteers performed a series of five different arm movements typically used in LIA while walking at a constant pace on a treadmill. Oxygen consumption and HR were determined during steady-state doing each arm activity. Following the arm movements, Ss walked on a treadmill at a pace that produced the same VO_2 as during each arm movement and the corresponding HR was recorded. Results indicated that three of the five arm movements produced exaggerated HR responses out of proportion to the oxygen cost of the activity when compared to leg activity. In these three arm movements, the HRs were 7, 8 and 10 b/min higher than at the equivalent VO_2 when just walking. It was concluded that arm activities used in conjunction with leg activity may produce exaggerated HRs. Because of the exaggerated HR response, it will be less accurate to use the HR as an indicator of training intensity. Also, the training effect from LIA will be less than anticipated if vigorous arm activity is used.

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PREDICTING $\dot{V}O_2$MAX FROM A ONE-MILE WALK TEST IN COLLEGE STUDENTS.

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The purposes of this study were (1) to validate, in college males and females, the recently popularized Rockport Walking Test (RWT) to estimate $\dot{V}O_2$max; and (2) to develop, if appropriate, new equations for this specialized population. The RWT has been found valid in populations age 30 and above, but has not been validated in younger populations. Subjects (100 females/96 males) performed a $\dot{V}O_2$max test on a treadmill and a one mile walk test on an indoor track according to the original Rockport protocol. During the walk test, HR was monitored via telemetry. The $\dot{V}O_2$max predicted from the RWT consistently overpredicted the measured $\dot{V}O_2$max by 23% in females and 16% in males when using the generalized equation to predict $\dot{V}O_2$max. The correlation between the measured $\dot{V}O_2$max and the predicted $\dot{V}O_2$max in L/min was R=0.58 and 0.48 for the males and females respectively. A new generalized equation was developed for this sample which yielded a multiple R of .85 and a SEE of .4 l/min. Predictor variables were sex, weight, time for the mile walk and the HR response to the walk. However, the HR after 30 sec of recovery was a better predictor than the HR immediately following the walk. It was concluded that the RWT systematically overpredicts $\dot{V}O_2$max in college males and females and there is a need for more appropriate prediction equations for this population.

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MODIFICATION OF THE ROCKPORT WALK TEST TO PREDICT MAXIMAL OXYGEN CONSUMPTION WITH MORBIDLY OBESE SUBJECTS.

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The purpose of this study was to modify the one-mile Rockport Walk Test to predict maximal oxygen consumption in morbidly obese subjects. Maximal oxygen consumption was measured in 15 female and 5 male subjects(42.9±6.7% fat, 36.3±9.7 yrs) using a modified Balke protocol and the open circuit technique. Previous trials showed that the obese subjects could not tolerate a one-mile walk; therefore, a half mile walk (T1) was performed at the fastest possible pace. Heart rates were recorded for 15 seconds immediately upon termination of the half-mile walk. Twelve subjects(8 females, 4 males) were retested for the half-mile walk(T2) within five days to establish reliability. Multiple regression analysis to predict maximum oxygen consumption used body wt(kg), age(yr), sex(m=1, f=0), time(sec/60), and heart rate(bpm) with the following results: maximum oxygen consumption = 59.6 - (0.0104 * wt) - (0.0501 * age) + (2.45 * sex) - (4.2252 * time) - (0.0175 * HR); r=0.91, SEE=1.77ml/kg-min. Results from T1-T2 showed a correlation of r=0.93 was obtained for predicted oxygen consumption. Time for T1-T2 showed only 0.3±0.7 min difference and a correlation of r=0.93. These preliminary results indicate a half- mile walk may provide a good prediction of maximal oxygen consumption with the morbidly obese.

Supported by Health Management Resources, Boston, MA.

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SPORTS PARTICIPATION PATTERNS OF PROSPECTIVE PHYSICAL EDUCATION PROFESSIONALS.

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The purpose of this paper is to describe the sport and physical activity experiences of 1131 physical education majors from 26 colleges and universities, a selected sample representing the six AAHPERD districts. Broader segments of the general population (e.g., women and other minorities) have been studied with regard to their participation patterns in sport, but no researchers have yet focused exclusively on people who have chosen careers most directly associated with sport (e.g., teaching, coaching, sport and fitness industries, athletic training). Teacher socialization research demonstrates how powerfully background experiences influence recruits' responses to their professional education. It is reasonable to assume that people choosing sport-related careers also are influenced by their early experiences in sport. Respondents completed a 51-item questionnaire with both open-ended and closed questions. Reliability standards of .90 were maintained for coding and transferring data. Results included detailed information about formal, informal, high school and college participation in sport, dance background and involvement in sport roles other than athletes, as well as demographic data and specific information about career choices. 66% of these majors began participating in organized sports (and 48% in nonformal sport) during their elementary school years. As expected, the vast majority (92%) were successful high school athletes who participated in an average of 2.4 sports and earned more than four athletic awards. Thus it is not surprising that the majority of students reported choosing a sport-related career in order to continue involvement in sport. Fewer than a third of all majors (30%) participated in any dance activities. 44% reported participation in intercollegiate athletics, two thirds of these as starters. Although some gender differences were found (e.g., dance participation), no significant differences were found between men's and women's participation in high school and college sports. Few differences in participation patterns were found between career groups.

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RESULTS OF THE FLORIDA HEALTH EDUCATION SURVEY.

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The primary purpose of this study was to examine the status of health education in the Florida public schools.

Health education coordinators in each of the 67 Florida school districts were asked to complete a survey instrument. The instrument was designed after a review of instruments used in previous national surveys, and was reviewed by experts in the field of health education for content validity.

Sixty-five of 67 districts in Florida completed the survey yielding a 97% response rate. District coordinators identified 5 barriers to effective health education in their districts, including a lack of: (1) time for health instruction; (2) funding for health education program and materials; (3) mandate for middle school instruction in health; (4) certified health education teachers; and, (5) inservice training for teachers.

Over 65% of the coordinators reported a specific time commitment for health education was needed. This in Florida parallels national data which indicate that a least 53% of states require health education to be taught a specific number of hours at some time during the K-12 grades.

Forty-six percent of coordinators responding indicated a clear need for substantial increases in funding for health education. Needs repeatedly mentioned included the need for up-to-date materials to support curriculum efforts and the need for monies to support district health education coordination.

Another major deficit identified by the survey addressed the need for middle school level health instruction in the state. Over one-third of respondents specifically stated that required health instruction in the middle schools was needed.

While many respondents to the survey identified the need for certified teachers in health education, it was most vividly, demonstrated in their response to a question regarding certification status of their current instructors in health. Over 95% of the coordinators responding to the survey indicated that **none** of their teachers were certified in health education at the K-6 levels. Sixty-four percent said that **none** of their health teachers were certified at the 7-9 level, and 58% said that **none** of their teachers of health at the 10-12 level were certified in health education.

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THE EFFECT OF SAME AND MIXED STIMULUS-RESPONSE ASSIGNMENTS ON SPATIAL COMPATIBILITY. Lanie A. Dornier & T. Gilmour Reeve, Motor Behavior Center, Auburn University, Alabama.

The slowing of reaction times (RTs) for incompatible stimulus-response (S-R) assignments, relative to compatible assignments, has been attributed to translation processes. In previous research, only assignments that were of the same type within a S-R set have been used. That is, subjects were given either a compatible or an incompatible assignment for all S-R combinations. The use of the same assignment within a set does not allow for evaluation of how different assignments influence each other. The present study examined RTs from "same" and "mixed" assignments. The mixed assignment included both a compatible S-R sub-set and an incompatible S-R sub-set. Twelve subjects in each of three groups performed in a four-choice situation (index and middle fingers of the two hands). Two groups were given "same" assignments for all sub-sets with assignments being compatible for one group and incompatible for the other. The third group was given "mixed" assignments that were compatible for the left-hand responses and incompatible for the right-hand responses, or vice versa. A precue stimulus provided advanced information about which hand would be required, and thus for the "mixed" group which assignment would be required. An ANOVA revealed that RTs were slower for the incompatible assignment as compared to the compatible assignment, which was consistent with previous research. Additionally, there was no significant difference between RTs for the incompatible assignments from the "same" and "mixed" groups. However, with the compatible assignment the "mixed" group had slower RTs than did the "same" group (376 ms versus 322 ms, respectively). Thus, translation processes for the compatible assignment were slowed when an incompatible assignment was part of the S-R set.

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VALUES HELD BY PROSPECTIVE COACHES TOWARDS WOMEN'S SPORT PARTICIPATION.

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For women, the opportunity to participate in certain sports such as basketball has often been discouraged. Yet, in sports such as tennis, there has been support for participation. It has been found that physical education majors will comprise a substantial proportion of the coaching profession, yet there is an absence of research concerning the salient beliefs of physical educators/coaches about the participation of females in athletics. Negative attitudes held by future coaches may mean that any existing restrictive sport opportunities for females will persist. This study sought to determine whether values held by physical education majors toward women's participation in selected sports (basketball & tennis) were different than for men's participation in those same sports. A secondary purpose of the study was to determine whether the subject's sex produced a difference in responses. 161 subjects completed a modified (sport specific) version of Kenyon's ATPA inventory and indicated the extent to which they valued the participation of men and women players in tennis and basketball as ascetic and aesthetic experiences. The ascetic and aesthetic subdomains were evaluated as they closely resemble the Metheny classification of 'appropriateness' of a sport for women. Analysis of variance procedures were used to determine the effects of the subject's sex upon each subdomain and each sport. While men's basketball was, as expected, the most highly valued for ascetic experience, both women's sports ranked low on this subdomain. Men's tennis was valued highest for aesthetic experience while women's basketball was valued lowest. In all cases the subject's sex produced no effect. The results confirm recent research which indicated that norms of appropriateness are still evident and that they are equally held by both sexes.

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THE EFFECT OF TRAIT ANXIETY AND FITNESS LEVEL ON HEART RATE AND STATE ANXIETY RESPONSES TO A PSYCHOSOCIAL STRESSOR.

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The purpose of this study was to examine the effect of trait anxiety and cardiovascular fitness level on physiological and psychological responses during and following the presentation of a psychosocial stressor preceeded by an acute bout of exercise. Three hundred females enrolled in a college aerobics class were administered Spielberger's Trait Anxiety Inventory and their estimated maximal oxygen uptake (VO2 max) was measured via the Astrand test on a cycle ergometer. The students were then divided into 4 groups: HI TA/HI FIT (n=14), HI TA/LO FIT (n=20), LO TA/HI FIT (n=10), and LO TA/LO FIT (n=14). In the laboratory, baseline heartrate (HR) and state anxiety were assessed. Subjects then rode the cycle ergometer at 50% of their HR reserve for 15 min. A 20 min recovery period followed during which HR was measured every minute and state anxiety assessed during minute 11. Subjects then performed a cognitively stressful task for 5 min. (i.e., counting backwards by 13 from a 4-digit number in the presence of white noise). HR was measured each min and the number of correct responses was recorded. Subjects were told that the best performer would receive a monetary prize. State anxiety was assessed immediately following the cognitive task, and after a subsequent 10 min recovery period. Again, HR was measured every min. Results indicated that HR and state anxiety were significant higher during the stressor than at baseline or the final minutes of exercise recovery. HI FIT subjects had lower baseline HR than LO FIT subjects but baseline state anxiety did not vary as a function of trait anxiety or fitness level. ANCOVAs for repeated measures (with baseline variables as the covariates) revealed that HI TA subjects had higher HR during min 9-10 of the post-stressor period and higher state anxiety across conditions when compared to LO TA subjects. ANOVA indicated that LO TA/HI FIT subjects had the highest performance on the cognitive task. In general, the findings suggest that responses to the presentation of a psychosocial stressor are effected more by individual differences in trait anxiety than the fitness level of the subjects. Further, an acute bout of exercise which preceeded psychosocial stress did not attenuate stress reactivity or recovery in HI FIT subjects more than what was observed for LO FIT subjects.

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THE INFLUENCE OF GOAL PERSPECTIVE ON PERCEIVED EXERTION AND AFFECT RATINGS DURING SUBMAXIMAL EXERCISE.

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It has been estimated that at least one third of the variance in perceived exertion ratings (RPE) is unexplained after considering physiological variables. The literature suggests that motivational factors may be important predictors of RPE. The purpose of this study was to examine RPE and affective responses to submaximal exercise as a function of individual and situational differences in goal perspective. The 44 subjects were paired according to sex and fitness level (VO2max) and randomly assigned to either a task- or ego-involving cycle ergometer exercise. The exercise was a 6 minute ride at an intensity equal to 70-75% of each subject's previously measured maximal oxygen uptake. In the task-involving condition, it was explained that the ergometer ride was not a test and that it was not possible to compare the responses of one subject with another. Subjects were encouraged to try their best and enjoy the exercise. In the ego-involving condition, subjects were told that they were participating in an exercise test and that their responses would be evaluated in relation to same-sex peers. Immediately prior to the completion of the exercise, subjects were asked to indicate their RPE (leg, cardiovascular, overall) using the Borg (1962) scale. Affect was also assessed on a bipolar feeling scale (Rejeski et al., 1987). Based on a previously administered questionnaire (Duda, 1989), the subjects were classified as high (n=18) or low (n=19) in task orientation or the tendency to focus on self improvement and task mastery when engaged in physical activity. Analyses of variance and post-hoc tests indicated that, in the ego-involving condition, high task oriented subjects had significantly lower RPE values than low task oriented subjects. In the same condition, high task oriented subjects also had more positive affective ratings than low task oriented subjects. This pattern of results was consistent even after controlling for fitness level. The findings are discussed in accordance with previous psychological research on RPE and recent goal perspective theories of motivation (Dweck, 1986; Nicholls, 1984). It is suggested that since high task oriented people tend to enjoy challenges, feel that they have the ability to improve with greater effort, and worry less about performance outcomes, they would be more likely to perceive that a particular exercise test is not as demanding or unpleasant as low task oriented individuals.

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DATA-BASED ANALYSIS OF THE NEED FOR HIGHER EDUCATION PERSONNEL SPECIALIZATION IN ADAPTED PHYSICAL EDUCATION. Dunn, John M. and McCubbin, Jeffrey A. Oregon State University

The passage of federal laws (PL 94-142, PL 93-112, and PL 99-457) has led many colleges and universities to add coursework requirements in adapted physical education to their curricula for the training of prospective physical education professionals. This has resulted in the retooling of existing personnel, or redefining old positions to respond to the growing interest in physical education programs for students with disabilities. Unfortunately, the need for qualified professors of adapted physical education exceeds the available pool. The purpose of this study was to document the need for higher education personnel with specialized training in adapted physical education. A systematic, data-based approach was used which compared the number of (IHE) position searches conducted in adapted physical education to the number of dissertations completed in adapted physical education for the years 1985-87. To determine the number of searches for adapted physical educators conducted by IHEs, an analysis was made of job listings in the Chronicle of Higher Education. The following data were recorded: institution, location, closing date, degree requirement, position permanency, teaching responsibilities, etc. Sixty-three positions were identified in 29 states with four states each identifying four or more positions. A computerized search was made of Dissertation Abstracts (1985-87) to identify the number of individuals trained in adapted physical education. The data-based search was conducted using key terms; each dissertation identified was reviewed to insure that the study addressed an issue or topic pertinent to the field of adapted physical education. An analysis of the data substantiates the following findings: 1) During the 1985-87 period only 16 individuals with training in adapted physical education were prepared. This number contrasts sharply to the number of available positions (N=63); 2) The number of individuals prepared annually is declining at an alarming rate; 3) Few IHEs have made a commitment to prepare the needed personnel; 4) There is a shortage of qualified doctoral level personnel with training in adapted physical education. These findings provide valuable information for the future training of leadership personnel in adapted physical education.

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AN ALTERNATIVE APPROACH TO SKINFOLDS FOR ASSESSING BODY COMPOSITION IN CHILDREN AGED 6 TO 13 YEARS.

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Obesity has been related to several chronic diseases, and it is important to identify overweight children who are at risk of becoming obese adults. AAHPERD has recommended the sum of triceps and calf skinfolds (SF) as a measure of body composition. However, many physical education teachers fear lawsuits and are reluctant to measure skinfolds. The purpose of the present study was to offer an alternative approach to skinfolds for assessing body composition in children aged 6 to 13 years. Although AAHPERD has included body mass index (BMI, body $\text{mass}/\text{height}^2$) as an optional measure of body composition, BMI does not discriminate between lean mass and fat mass. Since muscular strength is related to lean body mass, an equation was developed to estimate SF (mm) from grip strength (GS, kg) and situps (SU, number completed in 1 minute) in addition to BMI (kg/m^2), age (y), and gender (0=female, 1=male). Body composition and strength were evaluated in 223 males and 240 females aged 6 to 13 years. Multiple regression yielded the following equation (n=423):

$$SF = -34.8 + (3.21*BMI) + (1.18*AGE) - (0.219*GENDER*GS) + (0.175*GENDER*SU) - (0.0404*AGE*SU);\ R^2=0.71.$$

All coefficients were highly significant ($p<0.01$). An estimated value for SF was calculated using this equation for a cross-validation group (n=40). The measured SF value was regressed on the estimated SF value, and the following equation was obtained indicating that the difference between measured and estimated SF values was very small:

$$\text{Measured } SF = 1.27 + (1.13*\text{Estimated } SF);\ R^2=0.70.$$

Using the AAHPERD health fitness standards for SF, 77.5% of the children in the cross-validation group were placed in the same category by measured and estimated SF. In conclusion, the multiple regression equation provides an accurate alternative approach to SF for assessing body composition in children. To identify children who may benefit from a weight-control program, results obtained from this equation can be used with the AAHPERD health fitness standards for SF.

Funded by Ronald McDonald Children's Charities

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IMPACT OF LEVELS OF TAXATION AND SMOKING RESTRICTIONS ON SMOKING BEHAVIOR.

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The purpose of this study was to examine the impact of taxation and levels of smoking restrictions by states to the prevalence of smoking behavior in those states. Thirty two states participating in the Behavioral Risk Factor Surveillance Study in 1987 served as the sample. State restrictions were analyzed and scaled 1 to 5 in discreet increments. Tax rates were coded as cents per package of 20 cigarettes.

A Spearman rank correlation coefficient was computed to assess the strength and direction of the relationship between the dependent variables of interest. In addition, a stepwise discriminant analysis was used to determine which combination of variables best describes and separates differing levels of smoking restrictions.

Notable significant relationships are summarized as follows:

- As the degree of smoking restriction increases, smoking prevalence, sales, and the proportion of individuals who indicate that they currently smoke decreases.
- As the tax rate on a package of cigarettes increases, cigarette sales decrease. Also, as the cigarette tax rate increases, the proportion of individuals who report that they are former smokers increases.
- As the proportion of males in the population increases, cigarette sales decrease.

The discriminant analysis found five variables to be important in accurately discriminating between states with differing levels of smoking restrictions. Two of these variables, the length of time between passage of the initial restriction and data collection and the proportion of males in the population will be discussed.

Overall, the results of the study indicate that smoking restrictions and taxation rates are related to decreased levels of smoking.

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MEASURING THE RELATIONSHIP BETWEEN STUDENTS' ATTITUDES TOWARD ALCOHOL AND THEIR CORRESPONDING DRINKING BEHAVIORS.

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Evaluation studies of existing approaches to alcohol education have typically shown these programs to be ineffective in significantly modifying students' attitudes and behaviors regarding use of alcohol. Furthermore, previous studies reported in the literature have failed to show any consistent relationships between students' attitudes toward alcohol and their self-reported drinking behaviors. One reason for this result has been inadequate measurement instruments in which too little attention has been paid to issues of reliability and validity. Therefore, the main purposes of the study were to develop a sound instrument for the measurement of attitudes toward alcohol use, to define the underlying attitude components, and to examine relationships between attitudes and self-reported alcohol use. Facet analysis was used to construct items according to a scale blueprint which specified the basic attitude components of interest to the study. More specifically, the Likert-type survey items were designed to measure four facets: the amount of alcohol consumed in one sitting, the frequency of drinking, the area of life impacted by drinking, and whether the drinking resulted in positive or negative consequences to an area of life. These efforts and an item classification process were undertaken to address issues of content and construct validity. A separate section of the survey measured epidemiological variables to assess demographics and patterns of drinking behaviors. A sample of 234 college students enrolled in public and private 2 and 4 year institutions located in a metropolitan area of the southwestern U.S. completed the anonymous survey. Statistical analyses indicated high reliability (coefficient alpha=.92) and item-total score correlations that were uniformly high. Multidimensional scaling analyses confirmed the existence of the four facets hypothesized to be measured by the survey. The results of the multiple regression analysis conducted to examine the relationships between the attitude scores and drinking behaviors were statistically significant ($F=10.47$, $p < .0001$; R-squared=.51). It was found that students made a clear distinction between their attitudes toward drinking very small amounts of alcohol and very large amounts. However, their attitudes did not reflect the distinction of moderate alcohol consumption. The regression analysis showed that positive attitudes toward alcohol corresponded to higher scores on the drinking behavior index and negative attitudes corresponded to lower scores, which has implications for programs to change attitudes.

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OXYGEN CONSUMPTION FOLLOWING SHORT DURATION EXERCISE.

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Research has shown that exercise can significantly increase resting metabolism in the post-exercise period with implications for weight control. The size of this effect, however, is controversial. The aim of this study was to compare the increase in oxygen consumption (VO_2) following various intensities of exercise with duration of exercise held constant. Ten sedentary female college students were recruited; 8 received medical clearance for participation. Subjects were scheduled for a maximal oxygen consumption (VO_2max) test on the treadmill using the Bruce protocol. Three treadmill exercise sessions, with workloads monitored by VO_2 at 45, 65 and 80% of each subject's VO_2max and a no-exercise (resting) control session were assigned to each subject in random order. All sessions were 15 minutes (mins) in length at least one week apart. Vo_2 was monitored for 10 mins prior and for 60 mins following all sessions. The data were averaged to form 7, 10-min blocks. A 5 (workload) by 7 (block) MANOVA with calories and ml/kg^{-1} was performed. The follow-up ANOVA revealed main effects for workload and block for both variables. The workload by block interaction was significant for calories, $F(24, 245) = 3.05$, $p < .0001$. Post-exercise increases in VO_2 for maximal and 80% workloads were greater than 45% values. At these 2 highest workloads there were differences in the rate of decline in post-exercise VO_2. Absolute baselines were not reached at 60 minutes post-exercise although excess calories were negligible (<10 calories). Lack of significant differences post-exercise for workloads at 45 and 65% and between 45% and control may demonstrate the slight and transitory effect of low-moderate exercise of short duration. Following low-moderate intensities, recovery was completed early in the hour; a small oxygen savings was seen for the remainder of the hour supporting a possible relaxation effect of light-moderate exercise. Low-moderate intensity exercise of 15 mins duration was not effective in increasing post-exercise VO_2. High intensities of short duration contribute relatively little to post-exercise energy expenditure and are unsafe, unpalatable and unattainable for the majority of our population. Future research should use low-moderate workloads with longer durations to clarify the potential post-exercise energy expenditure for weight control.

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EVIDENCE FOR A TOTAL MOOD DISTURBANCE SCORE ON THE POMS FOR ATHLETES.

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The authors of the Profile of Mood States (POMS) suggest that a Total Mood Disturbance (TMD) score might be derived by summing across all six factors (weighing Vigor negatively). The TMD score would reflect a single global estimate of affective state. However, the authors of the POMS present no evidence for the presence of this score. Therefore, the purpose of this study was to explore the possibility of the existance of a TMD score on the POMS using a group of elite level athletes. Data for this investigation were from previously published data wherein POMS scores were obtained from the athletes participating at a recent national championship gymnastics meet for both men and women. Six scores, namely, Tension, Depression, Anger, Vigor, Fatigue, and Confusion for 75 female and 58 male elite level gymnasts were subjected to an initial factor analysis using the principal component method of factor extraction and varimax rotation. The solution yielded only one factor with an eigenvalue greater than one and this factor accounted for 59% of the total variance. The rotated factor loadings were: tension = 0.741, depression = 0.865 anger = 0.785, vigor = -0.547, fatigue = 0.741 and confusion = 0.869. In order to investigate the possibility of gender differences, the same exploratory factor analysis was conducted on the males and females separately. For the males, the solution yielded only one factor with an eigenvalue greater than one and this factor accounted for 57% of the total variance. The rotated factor loadings were: tension = 0.705, depression = 0.889, anger = 0.788, vigor = -0.560, fatigue = 0.725 and confusion = 0.835. For the females, the solution yielded only one factor with an eigenvalue greater than one and this factor accounted for 59% of the total variance. The rotated factor loadings were: tension = 0.748, depression = 0.848, anger = 0.799, vigor = -0.540, fatigue = 0.739 and confusion = 0.884. Therefore, it was concluded that evidence exists for a Total Mood Disturbance score on the Profile of Mood States for both male and female gymnasts. The score may be useful to researchers and clinicians who might desire a single global estimate of affective state.

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Ethnicity, Sex, and Inequality: Perspectives from the National Survey of the Physical Education Professoriate. William H. Edwards, University of Arkansas.

Colleges and universities have been under considerable pressure during the past quarter-century to address inequalities in their practices concerning ethnic and sexual minority faculty members. This exigency has become particularly evident recently in the affirmative action policies of many institutions and state systems. Employment, promotion, and tenure practices within any faculty group depend, to a considerable degree, upon an accurate profile of present conditions relative to the sex and ethnic characteristics of its members. The purpose of this study was to gather and accurately describe the sex and ethnic demographic features of American professors of physical education. Data were analyzed from the National Survey of the Physical Education Professoriate. The survey was conducted in the spring of 1989. Two-thousand questionnaires were mailed to a random sample of full-time professors in American colleges and universities stratified by geographic location and Carnegie classification. The one-mailing return was 1,106 (60%). Sex and ethnic demographic data were analyzed for the purposes of this study. Results indicated that males comprise 61% of the population and females 39%. Women were also slightly more likely to hold appointments in liberal arts institutions than in research universities. The large majority of faculty (97.3%) identified themselves as "white", with the remaining distribution being 0.7% "American Indian or Alaskan", 0.8% "Asian or Pacific Islander", 0.9% "black", and 0.2% "Hispanic". Ethnic minorities were found represented equal to their numbers in all types of institutions, with the exception of black faculty members who more likely to hold appointments in liberal arts or comprehensive colleges than in doctoral granting or research universities. Analysis indicated that female faculty members were significantly underpaid relative to their male colleagues at all faculty ranks and at all institutional types except research universities. Ethnic minority faculty members (both male and female) received significantly greater salaries than their peers by rank, although these differences were greatest in research, doctoral granting, and comprehensive institutions. These data suggest that while some minority faculty have obtained equal economic compensation, women remain underpaid relative to males and that both women and minorities remain underrepresented in the ranks of the American physical education professors.

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Occupational Satisfaction: Results of the National Survey of the Physical Education Professoriate. William H. Edwards, University of Arkansas.

Occupational satisfaction has been shown to associate with academic preparation, scholarly productivity, professional mobility, career stability, family cohesion, psychological and physical health, and life happiness. Factors related to occupational satisfaction among the physical education professoriate have not been explored by any large-scale investigation. In order to identify patterns of career satisfaction among college phsyical educators, data were analyzed from the National Survey of the Physical Education Professoriate. The survey was conducted in the spring of 1989. Two-thousand questionnaires were mailed to a random sample of full-time professors in American colleges and universities stratified by geographic location and Carnegie classification. The one-mailing return was 1,106 (60%). The questionnaire elicited information relative to faculty demographics, work structure, productivity, career mobility, opinions concerning course requirements, opinions concerning student preparation, and occupational satisfaction. Occupational satisfaction data were analyzed for this study. Results indicated that the majority of faculty (90.9%) either agreed or strongly agreed that they enjoyed their job, while 66.1% were as enthusiastic about teaching as when they begin their careers. Other indices also revealed high levels of satisfaction among the sample. Still, more than one in ten faculty members indicated that if they had it to do over again they would not enter college teaching, and 27.7% would strongly consider a nonacademic position if one were available. Women were generally more satisfied than were men, while those in liberal arts colleges exhibited the greatest levels of occupational satisfaction and those in research institutions the least. The factors most frequently cited as contributing to career satisfaction were teaching, working with students, and the college environment. The least desirable occupational factors were perceived low salary, pressure to publish, frustration over students' lack of preparation and poor academic skills, and the belief that others viewed physical education as inferior to other discipline areas of the college program.

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COMPARISON OF PERCEPTIONS AND SELF-ESTEEM OF HIGH AND LOW FITNESS GROUPS IN ELEMENTARY CHILDREN. Mary E. Engelman, University of Houston.

Harter (1985b, 1986) and Rosenberg (1982) have found that children are capable of assigning different weights of importance to various activities according to how successful they are in the selected activity. The purpose of this study was to investigate differences of perceptions of importance, perceived ability, and self-esteem in students who scored high and low on a physical fitness test. The subjects included boys and girls in grades 3-5 involved in coeducational physical education classes. An investigator designed questionnaire containing demographic information and questions pertaining to perceptions of importance and perceived ability was administered as well as the Washington Self-Description Questionnaire and a required physical fitness test. Students were ranked on the fitness test according to standards of the Fit Youth Today test. Results for this study were analyzed comparing high ($n=85$) and low ($n=39$) fitness groups with genders combined and separated. When genders were combined, significant differences ($p=<.05$) occurred between ability groups as to the importance of being physically fit, but non-significant differences in regard to importance of doing well in fitness activities. When genders were separated, both genders indicated non-significant differences in both importance factors. Significant differences occurred when genders were combined and separaged regarding activity-specific self-esteem as well as perceived ability. Subjects scoring high on the fitness test perceived themselves as doing well on the fitness components and scored high on the self-esteem scale. The converse was true of subjects in the low ability group. The results concur with Harter and Rosenberg in regard to subjects assigning importance of an activity when success was expected. However, subjects from the low performing group expecting to do less than average on the test still placed much importance on being fit and doing well on the fitness test. This agrees with Fox (1988) who states that although students will discount activities they perceive to give low success, society can have a powerful impact on selected aspects. Physical attractiveness and physical fitness appear to be example of this. Further research is indicated to determine the influence of society and significant others on these low scoring subjects and how this influence affects their self-esteem structure.

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Examination of Knowledge Structures within the Parameters of a Concept-based Curriculum. Catherine D. Ennis, University of Maryland

Correspondence between an individual's knowledge structure and subject matter structure increases with study and is related to achievement. This study examined both the serial order of concept development and the relationship between depth and breadth of development. The research compared the knowledge structures of four groups of preservice elementary physical educators at various points in their professional preparation with those of experienced, expert elementary physical educators. The Logsdon et al. framework served as the concept-based curriculum providing a well defined subject matter for study. Subjects were 5 freshman, 5 students completing 1 course in the Logsdon model, 5 students completing 2 courses in the model, 5 student teachers, and 5 physical educators. Cognitive structures were mapped using the ordered tree technique. Data were analyzed using two criterial categories: frequency and coherence. Post-training interrater reliabilities ranged from .82-.91. The data were further analyzed using an ANOVA to examine differences between subject groups. Results suggested that all subjects had some knowledge of fundamental movement concepts and basic relationships among them. Each level of exposure to the model increased both the frequency and coherence of the knowledge structure. Student teachers were able to articulate more concepts with greater coherence within the aspects of body and space than students with less practical experience. However, they exhibited significantly lower frequency and coherence scores within the effort and relationship aspects when compared to experts. These findings supported the position that introductory coursework in the movement framework serves as a transitional period in which students transform preexisting experiential knowledge into more theoretically structured pedagogical knowledge. It appears that a focus on the body and spatial aspects of the framework during the initial introductory period may be more relevant to students based on increased associations with prior knowledge. By structuring professional preparation to first assist students with transformations followed by an emphasis on conceptual understandings, their ability to plan and teach from the knowledge base in physical education may be enhanced.

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Metabolic and Perceived Exertion Responses to Stationary Water Cycling.

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Exercise in water has become quite popular as a means of physical conditioning. A mode of exercise in water that deserves reexamination is stationary cycling. The purpose of this study was to determine the metabolic and perceived exertion responses associated with stationary cycling in water using three speeds (S) and seven fin (F) resistances. Ten subjects in good physical condition volunteered to complete 21 randomly assigned six-minute water cycling workbouts performed in the shallow end of a swimming pool. Workbouts consisted of pedalling 20, 30, or 40 $rev \cdot min^{-1}$ with 0 to 6 F's attached to the flywheel of a modified Monark cycle ergometer. Metabolic data were monitored continuously using a Medical Graphics Metabolic Cart, heart rate recorded each minute using telemetry, and RPE recorded at the end of each workbout. Within each S, physiological and perceived exertion responses increased with F. VO_2 in liters (VOL) and milliters, METs HR and RPE were significantly correlated with F, r's=.70 to .92,$p<.01$. The range of values across the seven F for each S were: for S = 20, VOL = .445 to .969,METs = 1.8 to 4.0, HR = 76 to 95, RPE = 6 to 9; for S = 30, VOL = .538 to 2.273, METs = 2.2 to 9.7, HR = 81 to 153, RPE = 7 to 15; for S = 40,VOL=.782 to 3.663, METs = 3.3 to 12.0, HR = 90 to 170,RPE = 7 to 19. Using non-metabolic data to predict VOL, stepwise, backward and forward regression analyses produced similar solutions for each S. For S = 20, VOL = - .3631 + .08755(F) + .00427(WT) + .00173(HR) with R^2 of .91 and SE of .078. For S = 30, VOL = -.3701 + .2943(F) + .0062(WT) with R^2 of .91 and SE of .198. For S = 40, VOL=-1.372 + .2421 (F) +.0105(WT) +.0935 (RPE) with R^2 of .91 and SE of .303. These data suggest that VOL may be estimated from non-metabolic data with errors similar in magnitude to other modes of exercise. Cycling in water may be useful as an alternative mode of exercise during lower extremity rehabilitation or as a primary exercise for arthritic and obese populations as well as healthy, athletic populations.

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PERCEPTIONS OF ATHLETICISM: SHOULD PHYSICAL EDUCATION TEACHERS PROMOTE SELF-REFERENCED EVALUATION?

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This study examined the relationships between conceptions of ability and learning a novel task in physical education. Conceptions of ability can be defined either with reference to the performance of others (social-norm-referenced) or with reference to self. It has been proposed that educators can increase their effectiveness if they structure the learning environment to promote self-referenced evaluation, in that self-referenced conceptions tend to produce more desirable educational outcomes than social-norm-referenced conceptions of ability. (Nicholls, 1984) Three classes of seventh grade students ($N = 64$) were taught a 5-day physical education unit on a novel skill. On each of the five days students were asked to rate their ability on a 5-point Likert scale (a) in relation to their own previous performance, and (b) in relation to the other students in the class. Students also completed pre and post skills tests. The physical education teacher rated each of the students on athleticism using a 5-point Likert scale. Relationships between perceived ability and actual skill performance, learning, and teacher's rating of athleticism were examined. Regression analysis and Pearson-product moment correlations were employed to evaluate these relationships in the data. Results indicate that students' self-referenced ratings were generally higher than their social-norm-referenced ratings. Social-norm-referenced ratings were significantly ($p < .05$) related to performance scores whereas the self-referenced ratings were not. Apparently the social-norm-referenced ratings were more accurate. However, self-referenced ratings were significantly ($p < .05$) related to a learning variable, where as the social-norm-referenced ratings were not. Those students who had the high learning scores rated themselves high when comparing themselves to their own previous performance. The social-norm-referenced ratings were significantly ($p < .05$) related to the teacher rating. It appears the teacher employed a norm-referenced criterion in her ratings of athleticism. These findings add support to the literature on perception of ability and indicate that there is indeed a difference in seventh graders perceptions of their ability depending on the comparator. The higher self-referenced evaluation and its relationship to learning found in this data appears to be an ideal state because feelings of competence are a function of perception of learning. Also, students will act to maximize their chances of learning and minimize behavior that will not produce gains in mastery. This is not the case when they are social-norm-referenced involved. (Nicholls, 1984) A variety of teaching methods that diminish social-norm-referenced involvement and promote self-referenced evaluation have been developed. Unfortunately, the general trend across the grades is for an increase in practices that foster social-norm-referenced evaluation. (Eccles, Midgley, & Adler, 1983)

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FROM BEST TO BUST: AN ETHNOGRAPHIC STUDY OF A FIRST YEAR SECONDARY PHYSICAL EDUCATION TEACHER.

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Numerous researchers have reported first year classroom teachers' experiences and have identified specific problems encountered by them during this induction period. However, little attention has been given to beginning teachers in physical education. The purpose of this study was to examine the experiences and reactions of a first year secondary level physical education teacher. The teacher selected had been an outstanding student teacher during the previous year and had received rave reviews from master teachers and her university supervisor. She was hired to teach ninth and tenth grade coed physical education classes and coach two sports -- volleyball and track. Primary methods for data collection included direct observations with field notes, formal and informal interviews, collection of relevant documents, and the administration of the Teacher Concerns Questionnaire (George, 1978). On-site observations took place during ten visits to the school for a total of approximately 45 hours. Field notes recorded instances of observed successes, failures, and stresses as well as any emotional or professional support received. Informal interviews were conducted with the teacher during the ten visits. Additionally, a four-hour formal interview was conducted at the conclusion of the study. Written documents were collected throughout and the Teacher Concerns Questionnaire was administered on two occasions. Field notes, interviews, and document data were initially categorized according to the teacher's functions -- Department Chair, coaching, or teaching -- and according to the types of people that she interacted with during the study. Each experience was coded as either positive/supportive or negative/nonsupportive. The questionnaire results were compared to the qualitative data to identify any inconsistencies in interpretation and to determine changes over time. The teacher studied experienced an increasing sense of discomfort as she proceeded through the first half of the school year. She resigned her teaching post in less than four months. Leading to this decision were weeks of growing self-doubt, anxiety, depression, and anger. Factors contributing to her resignation included her sense of role overload and lack of support . Additionally, her relationships with colleagues, administrators, students, students' parents, and her own family and friends contributed to her decision to resign. The study explored the beginning teacher's decreasing sense of efficacy (the belief she was doing an adequate job) and her frustrations over unmet expectations.

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THREE-DIMENSIONAL KINEMATICS OF THE TRUNK DURING BASEBALL PITCHING. Michael E. Feltner, Pepperdine University.

The baseball pitch has been one of the most analyzed actions in sports biomechanics. However, very little is known about the three-dimensional (3D) kinematics of the trunk and how the trunk movements contribute to the motions of the throwing arm during the pitch. The purpose of this study was to analyze the 3D kinematics of the trunk during baseball pitching as a prelude to investigating the trunk and throwing arm interactions. Eight male intercollegiate varsity baseball pitchers were filmed using the Direct Linear Transformation method of 3D cinematography. Standard film analysis procedures were used to digitize the projected film images and to obtain 3D coordinate data for the relevant body landmarks. Vector algebra procedures were then used to calculate the four angles that defined the orientation of the trunk relative to an inertial reference frame (R) that had its origin at the midpoint of the rear edge of the pitching rubber. Three vectors were used to define the axes (X, Y and Z) of reference frame R: a) vector $\underline{Z}$ was vertical, b) vector $\underline{X}$ was horizontal and directed along the rear edge of the pitching rubber toward the third base side of the field, and c) vector $\underline{Y}$ was perpendicular to $\underline{X}$ and $\underline{Z}$ and pointed toward home plate. The four trunk orientation angles computed were: a) the upper trunk twist angle, b) the lower trunk twist angle, c) the medial/lateral lean angle, and d) the anterior/posterior lean angle. Examination of the various plots of these four angles versus time led to the following general conclusions for all subjects. At an instant 0.075 s prior to the instant of stride foot contact (the time of the first analyzed frame), the upper trunk was rotated between 90° and 140° clockwise away from the X axis and the lower trunk was rotated between 60° and 120° clockwise away from the X axis. After this instant, the lower trunk began to rotate counterclockwise and near the instant of stride foot contact it was joined by a counterclockwise rotation of the upper trunk. After the instant of stride foot contact, both the lower and upper trunk rotated counterclockwise quite fast, and these twisting motions of the trunk continued until an instant just prior to the instant of maximum external rotation of the throwing arm. At this time, the rate of counterclockwise lower trunk rotation decreased markedly and the rapid counterclockwise rotation of the upper trunk continued to occur. These actions resulted in the upper trunk being in a position of greater counterclockwise rotation than the lower trunk at the instant of ball release (approximately 30° and 0° counterclockwise relative to the X axis, respectively). In the medial/lateral lean direction, the trunk was tilted toward the throwing arm side of the pitcher (medial lean of approximately 20° relative to the Z axis) at the instant of the first analyzed frame. This position of the trunk was maintained until near the instant of stride foot contact, when the trunk began a lateral tilting toward the non-throwing arm side of the pitcher. This lateral tilting of the trunk continued until the instant of ball release, but the speed of tilting decreased as the throw progressed. This resulted in all pitchers maintaining a roughly constant lateral lean position of between 15° and 40° in the final stages of the pitch. The angle of anterior/posterior lean was highly variable among the subjects, especially during the portion of the pitch from the instant of the first analyzed frame until approximately 0.045 s prior to the instant of maximum external rotation of the throwing arm. However, at the end of this period the trunk was in a position of slight anterior lean in all pitchers. The anterior lean of the trunk continued to increase throughout the remainder of the pitch, and at release the angle of anterior lean ranged from 10° to 35° relative to the Z axis in all subjects.

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The Ability of Parent and Teacher Ratings of Physical Fitness to Predict Physical Working Capacity in Children. Juliane Fenster, Cara Ebbeling, Patty Freedson, Ann Ward, Elaine Puleo and James Rippe. University of Massachusetts Medical Center and Exercise Science Department.

In large scale epidemiologic studies and/or in the school setting, time and resources available to assess physical fitness in children are often limited. Individuals who are actively engaged with children may be able to provide useful estimates of physical fitness. The main purpose of the present study was to assess how well parents and physical education teachers could accurately rate their child's/student's level of fitness as defined by submaximal physical working capacity (PWC170/kg). Additionally, the relationship between objective health-related fitness items and subjective ratings of fitness were evaluated. School children (n=217 boys and 226 girls) aged 6-13 years (Mean + S.D.: 10.3 + 2.13 years) completed a battery of fitness test items including PWC170/kg on a cycle ergometer, timed sit up score, grip strength, sit and reach test, and sum of skinfolds (tricep and calf). Parents and teachers were asked to rate their child's/student's level of fitness as (1) poor, (2) fair, (3) average, (4) above average, (5) excellent. Stepwise regression analysis was used to determine the individual contributions of the parent and teacher ratings (PR, TR) in predicting PWC170/kg; significant predictors of PWC170/kg were gender, TR, PR, and age ($R^2=0.25$, variables are listed in order of significance). Further regression analyses were performed on each gender group. For females significant predictors of PWC170/kg were PR, TR, and age ($R^2=0.38$). For males the predictors were TR, age and PR ($R^2=0.34$). Stepwise regression was also used to determine the health-related fitness measures which contributed to the PR and TR. Significant contributors to the PR were PWC170/kg, sum of skinfolds, and sit up score ($R^2=0.07$). For the TR, significant contributors were sit up score, grip strength, sum of skinfolds, and sit and reach score ($R^2=0.23$). In conclusion, parent and teacher ratings of fitness are not practical alternatives to previously validated fitness assessment techniques. Neither PR nor TR provided an accurate estimate of their child's/student's fitness as measured by PWC170/kg. When parents and teachers are asked to rate a child's/student's fitness level they seem to be considering different health-related measures in their fitness rating. Perhaps a more specific fitness question, a series of questions, or the child's own fitness rating would provide researchers and teachers with more useful techniques to estimate physical fitness in children. More research is needed to address these suggestions.

Funded by Ronald McDonald Children's Charities

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BODY COMPOSITION AND PLASMA LIPOPROTEIN PROFILES OF MALE AND FEMALE SWIMMING AND TRACK ATHLETES.

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This study investigated the differences and relationships between body fat and plasma lipoproteins using the noninvasive, validated, and precise measurements of fat free mass by Total Body Electrical Conductivity (TOBEC). Total body water, lean body mass, and total body fat were measured by TOBEC along with determinations of plasma lipoproteins [total cholesterol (TC), low density lipoprotein (LDL-C), high density lipoprotein (HDL-C), triglyceride (TG)] in 40 college-aged male and female swimming and track athletes. Body weight (Mean ± SD; 69.9 ± 0.6 vs 60.0 ± 3.8 kg), total body water (42.4 ± 0.5 vs 32.4 ± 0.5 liters) and fat free mass (57.9 ± 0.7 vs 44.3 ± 0.7 kg) were significantly higher in the males compared to the females. Total body fat (15.5 ± 3.4 vs 12.3 ± 0.4 kg) and percent fat (23.3 ± 6.1 vs 19.7 ± 2.9 percent) were higher in the swimming athletes than in the track athletes. The female swimmers had significantly higher percent body fat (29.3 ± 2.4 vs 22.5 ± 3.9 percent) than the female track athletes. Plasma HDL-C was significantly higher in the female swimming athletes (61.5 ± 10.6 vs 50.2 ± 9.3 mg/dl) and the female track athletes (56.0 ± 9.4 vs 48.3 ± 7.9 mg/dl) compared to the male athletes. A significant negative relationship was observed between plasma HDL-C and total body fat ($r = -.66$) in the female swimmers, the higher the plasma HDL-C level the lower the body fat. The relationship of total body fat to TC ($r=-.70$) in female swimmers was opposite what is observed in inactive females. This relationship may be due to the high percentage of HDL-C in TC or perhaps the insulatory nature of the swimmers body fat for adaptation to cold water has no effect on TC. According to the results of this study, plasma HDL-C is higher in athletic females compared to athletic males as is seen in inactive individuals. However, when utilizing the HDL-C/TC ratio, the male track athletes become similar to the female track athletes. In addition, the results indicate that the TOBEC methodology is very precise even when utilizing a small sample size.

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USING THEATER TO PROVIDE EFFECTIVE HIV/AIDS EDUCATION TO TEENS.

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Theater can be a meaningful and effective way to reach teenagers with critical information about AIDS/HIV infection and its transmission. As part of the AIDS Education for Youth Project, "Inner Circle," a play about adolescent friendship and the AIDS crisis was presented to ninth grade students in six high schools. The effectiveness of this theater production was assessed in a three-part evaluation. Student pre/posttests were used to determine the immediate impact on knowledge about AIDS/HIV infection and attitudes toward people infected with HIV. A student evaluation was used to assess feelings/opinions about the performance. Student focus group interviews were conducted to obtain more in-depth information about students' perceptions and experiences after seeing the play. Student pre/posttests were completed by 1757 students, 699 females (39.8%) and 638 males (36.3%). Data about gender were missing from 420 students. The student sample included: 514 Chinese (29.3%), 160 Latinos (9.1%), 150 Filipinos (8.5%), 124 Whites (7.1%) and 101 Blacks (5.7%). Percentages of students from all other ethnic groups were less than five percent. Data about ethnicity were missing from over 30 percent of the students. Students' ages ranged from 12 to 16 years old. Wilcoxon signed-ranks tests for matched pairs (n=889) showed statistically significant gains in 9 of 12 knowledge items (alpha=.05). Dependent t-tests for total knowledge scores indicated statistically significant gains (t=-8.34; p<.001). Student attitudes about people with HIV/AIDS were more positive after the performance. Numbers of students who felt that other students with AIDS should be allowed to go to school increased from 50.6% to 60.2% (p<.001). Students willing to be in the same class with a PWA increased from 49.4% to 57.5% (p<.001). After the performance, students were asked their feelings/opinions about the play (n=1212). More than 75% felt the play made them more aware of how AIDS/HIV infection could affect teens and that they are more likely to take steps to protect themselves. More than two-thirds thought the story and characters were realistic, the play gave them more accurate information about AIDS/HIV, and the play made them more aware of their own risk. One to two months after the performances, focus groups were conducted in three high schools. Questions focused on their feelings/experiences as a result of the play and their motivations to make healthy/unhealthy choices that put them at risk for AIDS/HIV. Overall, students felt the play made them more aware of their own risk and more sensitive and understanding of people with AIDS. They did not see AIDS as life-threatening. They said that teens did not feel comfortable talking about condoms and did not use condoms because of peer pressure.

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THE IMPACT OF BICYCLE ADVERTISING AND PROMOTIONAL TECHNIQUES ON THE LEGITIMATION OF SPORT BETWEEN 1883 AND 1903.

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Steve Hardy in his seminal work on the history of the sporting goods industry emphasized the need for research in this area and the importance of relating this research to larger developments in the history of American sport such as institutionalization and legitimation. The purpose of this study was to analyze the impact of the bicycle industry between 1883 and 1903 on the legitimation of sport in America. Review of related literature included the following historical categories: bicycle history, social histories of American sport, histories of advertising, technology, and marketing. Histories of successful bicycle companies were reviewed. Advertising and promotional techniques of successful bicycle companies were analyzed. National advertising and promotional techniques were analyzed to determine target market, advertising pitch, and alleged success based upon individual company interpretation and national sales records. Analysis revealed the following: 1) Successful companies had market plans developed by nationally recognized advertising agents. 2) Between 1883 and 1888 advertising campaigns were directed at adult, middle and upper class, male and female consumers. 3) After 1888 advertising campaigns were directed at male and female consumers from all classes and age groups. 4) Bicycle advertising and promotions attempted to convince consumers by linking bicycle purchase as sport to the following: a. health and fitness; b. culturally uplifing outdoor pursuit; c. leisure form that reflected democratic values and American character; d. the nurture of discipline, quick thinking, decision making ability, and the skills necessary for success in life. We conclude that the advertising and promotional techniques employed by the bicycle industry impacted upon the legitimation of sport. The bicycle industry did not create ideas; they popularized extant legitimation arguments by providing these arguments with a national forum.

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PROGRAMMING TIME AND INDEX OF DIFFICULTY IN MULTIPLE-TARGET TASKS WITH DIRECTION CHANGES.

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Sidaway, Christina, and Shea (1988) reinterpreted several past studies on response complexity effects on programming time. Under their analysis, increases in programming time, as measured by simple reaction time (RT), are not due to the greater number of movement parts in a complex response, but are instead due to the accuracy constraints placed on the motor system as a function of Fitts' (1954) Index of Difficulty (ID). ID is a mathematical expression of the relationship between movement amplitude and target size. According to Sidaway et al. (1988), ID functions to constrain the movement path of a limb on its way to strike a target; the higher the ID, the greater the movement constraint, and this is reflected in an increased time to program the response. In straight-line target-striking responses, Sidaway et al. demonstrated that RT was dependent on the target with the highest ID in the series, rather than the number of targets. When targets are not positioned in a straight line, however, Sidaway et al. predicted that RT would be a function of the cumulative series of movement constraints. Thus, an overall expression of movement constraints would be gained by adding the IDs of individual components. Since no direct tests of this prediction were presented, the purpose of the present study was to do just that. Sixteen subjects performed 20 acquisition trials and 20 test trials in two conditions. The tasks involved reacting to an auditory stimulus and moving a stylus as rapidly and accurately as possible to strike three circular targets positioned 10 cm apart in a stair-step pattern. In Condition 1, each target was 2 cm in diameter. In Condition 2, the first two targets were 6 cm in diameter; the third target was 2 cm. Thus, Condition 1 had a higher cumulative ID than Condition 2, although the highest single-target ID was the same in both conditions. Results revealed support for Sidaway et al.'s prediction. Mean RTs for Condition 1 and Condition 2 were 220 ms and 207 ms, respectively, and these were significantly different at $p < 0.05$. Movement times and error rates showed no evidence that speed-accuracy tradeoffs were operating. We conclude that programming time for target-striking movements with changes in direction is a function of the accuracy constraints imposed by changes in the Index of Difficulty.

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A COMPARISON OF MANUAL AND COMPUTERIZED DIETARY ASSESSMENT TOOLS: NUTRITION PROFILE PLUS VS A SIX-DAY FOOD RECORD.

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Recently there has been an infiltration of dietary analysis computer software into the marketplace. These packages are less costly for the researcher to administer, evaluate and are less time consuming for the respondent to complete. However, there have been few attempts to demonstrate reliability and validity of these new tools. The purpose of this study was to determine the reliability of the Nutrition Profile Plus (NPP)(a food frequency and eating habits questionnaire which takes 15 minutes to complete and 5-10 minutes to code into a personal computer to obtain a dietary analysis) and to compare selected nutrient information from the NPP with a six-day food record (6FR). Forty-one participants aged 19-61 years completed a NPP eight weeks apart. Two three-day food logs were also completed within this eight week period. The following factors were examined: total calories (KCAL); percent of calories as carbohydrate (%CHO), protein (%PRO), fat (%FAT), and saturated fat (%SF); milligrams of sodium (NA), calcium (CA), and cholesterol (CHOL), grams of fiber (FBR), and polyunsaturated to saturated fat ratio (PS). KCAL, %CHO, %PRO, NA, CA, CHOL, and PS were significantly correlated (r ranged from .58 to .73, p=.0001). Correlations for %FAT and %SF were lower (r=.37 and .30, p=.02 and .05 resp) and FBR was not significantly correlated (r=.23, p=.15). Examination of the interquartile range indicated that 50% of the study population fell within the following range of differences (NPP1-NPP2): KCAL, -292 to 387; %CHO, -6.1 to 4.3; %PRO, -1.9 to 0.5; %FAT, -4.1 to 6.1, %SF, -2.7 to 3.3; FBR, -2.3 to 4.2; CA -132.7 to 256.9; NA. -477.5 to 620; and CHOL, -75.4 to 96.3. For KCAL, %CHO, %FAT, NA and CHOL, the interquartile range was smaller when NPP1 and NPP2 were combined and compared to results of the six day food record (X of NPP1 and NPP2 - 6FR). These results demonstrate that although simple correlations may be significant, intraindividual variation may be great.

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A COMPARATIVE ANALYSIS OF DEPTH PERCEPTION OF NONHANDICAPPED AND LEARNING DISABLED CHILDREN. Sherry L. Folsom-Meek, University of Missouri-Columbia and Jean L. Pyfer, Texas Woman's University.

Depth perception problems in children are observable to the physical education teacher by difficulties with catching and kicking a ball, avoiding climbing apparatus, and balance problems. Major responsibilities of adapted and developmental physical educators include assessing of and programming for children with delayed psychomotor behaviors. For valid programming, children demonstrating the aforementioned difficulties may need to have the perceptual function of depth perception as well as gross motor behaviors assessed. Poor depth perception may be either tropic, in which the eye is always in misalignment, or phoric, in which there is a tendency for the eye to be in misalignment. Tropias are more easily observed by teachers, but phorias are more subtle and often go undetected. The purpose of this study was to determine if phoric measures of depth perception discriminated between nonhandicapped (NH) and learning disabled (LD) children. Subjects were 58 NH (n=29) and LD (n=29) male children between 8 and 13 years of age (M=10.6 yrs.). Instruments used were the two items assessing phorias from the Cover Test (Pyfer & Johnson, 1981), a biopter, and five items from an M-125 Biopter Vision Test (Vodnoy, 1970). Data were analyzed using an Apple IIe computer with supporting software for descriptive statistics (Elzey, 1987) and chi-square tests for two or more samples and post-hoc analyses (Schleiffers, 1983). Hypotheses of independence (no differences between groups in proportions of test scores) were tested at the .05 level for the seven tests. Results indicated nonsignificant chi-square values for the five biopter items and the left eye Cover Test item. The Cover Test item, uncover right eye and watch behavior of right eye, was significant ($\chi^2(1)=5.52, p<.05$), with NH children demonstrating better depth perception than LD children and LD children demonstrating more exo/esophorias than NH children. Based on the results of this study, it may be concluded that the Cover Test using the right eye is able to discriminate subtle depth perception problems of male learning disabled children. Use of this instrument should provide an unobtrusive and inexpensive screening measure to assess depth perception of learning disabled children.

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LEISURE SATISFACTION, LEISURE PARTICIPATION, AND LEISURE ACTIVITIES AMONG YOUNG-OLD AND OLD-OLD ADULTS IN NURSING HOMES AND SENIOR CENTERS.

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The purpose of this study was to investigate leisure interests and activities associated with the elderly and how these are influenced by factors of age (young-old and old-old) and location (nursing homes and senior centers). The Leisurescope, the modified Leisure Activities Blank, the Leisure Satisfaction Scale and a demographic information sheet were employed. Data from 128 subjects were utilized. In order to properly analyze data generated by the multiple dependent measures (9 scales of the Leisurescope, the modified Leisure Activities Blank, and Leisure Satisfaction Scale) a Multivariate Analysis of Variance (MANOVA) was performed, with age and location serving as the two independent factors. Evidence of a significant interaction between age and location was not found ($\underline{F} = .97$; df = 1, 124; $\underline{p} = .48$), therefore, subsequent analyses focused upon the main effect for age and location. No main effect for age was discovered ($\underline{F} = .61$; df = 1, 124; $p = 82$); however, a significant main effect for location was found ($\underline{F} = 4.95$, df = 1, 124; $\underline{p} < .001$). The MANOVA procedure provided univariate $\underline{F}$ tests for each dependent measure. The dependent measures found to be significant included: outdoor activities ($\underline{F} = 6.52$; df = 1, 124; $\underline{p} = .012$), collection activities ($\underline{F} = 16.98$; df = 1, 124; $\underline{p} < .001$), craft activities ($\underline{F} = 10.94$; df = 1, 124); $\underline{p} = .001$), educational/entertainment activities ($\underline{F} = 9.34$; df = 1, 124; $\underline{p} = .003$), volunteer activities ($\underline{F} = 21.19$; df = 1, 124; $\underline{p} < .001$), and leisure participation ($\underline{F} = 6.38$; df = 1, 124; $\underline{p} = .011$).

These findings do not provide a basis for concluding that young-old and old-old have different levels of leisure activities or levels of leisure satisfaction with leisure activities. On the other hand, this study provides support for the conclusion that certain activities will be engaged in to a greater extent by individuals in senior centers when compared to individuals in nursing homes. The overall level of participation in these activities tends to be greater among those individuals in senior centers. The nature of the activities which were identified as being either more preferred or more regularly engaged in by individuals in senior centers have in common the requirement that the individual must have access to some form of transportation. One implication of this finding might be that individuals in nursing homes would be more inclined toward such activities if programming which included these activities and transportation were consistently available.

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LIFE SATISFACTION, LEISURE SATISTACTION AND LEISURE PARTICIPATION AMONG YOUNG-OLD AND OLD-OLD ADULTS WITH RURAL AND URBAN RESIDENCE.

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The purpose of this study was to investigate the relationship between life satisfaction, leisure satisfaction and leisure participation among young-old and old-old adults with rural and urban residence in South Louisiana. A questionnaire which included the Life Satisfaction Index A (Adams, 1969), the Leisure Satisfaction Scale (Beard & Ragheb, 1980), the modified Leisure Activities Blank (McKechnie, 1975) and a demographic information sheet was employed. Data from 159 subjects (urban young-old N = 33; urban old-old, N = 30; rural young-old, N = 66, and rural old-old, N = 30) were utilized. A Pearson Product-Moment Correlation coefficient yielded significant relationships (p = .001) between life satisfaction and leisure satisfaction (r = .305), life satisfaction and leisure participation (r = .361) and leisure satisfaction and leisure participation (r = .519). This indicated that an individual satisfied in life was also satisfied in leisure and leisure activities; and increased leisure satisfaction and leisure participation can enhance the individual's life satisfaction. The results of the Two-Way Analysis of Variance indicated that age and place of residence caused no significant differences in life satisfaction and leisure satisfaction. However, place of residence caused a significant variance in leisure participation (F = 7.36, p = .007). These findings indicated that urban individuals participated in more leisure activities than rural individuals. A component's analysis was conducted on the leisure participation instrument. Utilizing the results of this analysis similar findings were produced.

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THE IMPACT OF TEACHER EFFECTIVENESS TRAINING ON THE MOTOR ENGAGEMENT OF PRESCHOOL CHILDREN IN PHYSICAL EDUCATION.

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Preschool teachers have become a primary force in the education of young children, however, at this level time-dependent physical education research is non-existent. The purpose of this study was to improve the teaching effectiveness of selected Head Start teachers and as a consequence improve motor engagement time. Six Head Start teachers were selected with three teachers assigned to the experimental group and three to the control group. In each class three students were selected as target students for observation. The study consisted of a preintervention, intervention, and postintervention. The instrument used in the study was the Academic Learning Time-Physical Education Insrument (ALT-PE) developed by Siedentop, Tousignant, and Parker (1982). Four categories of behavior were added to the system to better measure how preschool children spend time. These included free play, practice play, symbolic play, and unplanned games. Interval recording and a six-second observe, six-second record format was used. Twenty-four classes were observed at the preintervention stage and twenty-four at the postintervention. All sessions were videotaped and analyzed at a later date. Reliability of the data were achieved by simultaneous coding of selected classes by the researcher and a trained independent observer. Reliability scores of .80 or greater were achieved to meet the criterion of interobserver agreement. The data were statistically examined by using the analysis of covariance technique of multiple linear regression. The .05 level of significance was used. The intervention consisted of four 90 minute workshops plus one 10 minute practice lesson. Results of the study demonstrated significantly greater postintervention figures in ALT-PE (42.5%) and Skill Practice (64.1%) in the experimental group when compared to the control group (3.1%) and (21.7%). In addition, significantly lower postintervention percentages for Waiting Time (38.8%) and Free Play (0%) were found in the experimental group when compared to the control group (56.8%) and (62.7%). This study demonstrated that non-certified teacher behaviors can be altered to enhance motor engagement at the preschool level.

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PSYCHOLOGICAL ORIENTATION TO EXERCISE: THE EFFECTS OF AN EDUCATIONAL INTERVENTION. Kenneth R. Fox, University of Exeter.

Exercise has come to the forefront as an important medium for the promotion of public health. A reaction from physical education has been the introduction of lecture/laboratory classes designed to improve skills and attitudes regarding exercise. The effectiveness of these interventions in the initiation of either behavioral or psychological change has not been well tested, particularly within a theoretical framework. This study investigated the effect of a 15-week, 3-credit general education elective 'Lifetime Fitness' lecture/lab. class on the self-perceptions, exercise beliefs and intentions, and exercise behavior of college students. A similar class offering the subject of sport in society provided a control group. Data were collected from 6 sections of treatment and control groups during the first and last weeks of the Spring semester, resulting in a treatment group of 67 males and 61 females, and a control group of 69 males and 21 females. Self-perceptions were assessed using Rosenberg's Self-Esteem Scale, and Fox's Physical Self-Perception and Perceived Importance Profiles. Thirteen beliefs about the outcomes of regular exercise, the perceived value of these outcomes, and exercise-related attitude and intent were assessed within the framework of Ajzen and Fishbein's Theory of Reasoned Action. Exercise behavior was assessed using self-report of frequency, intensity, duration and type of activity involvement during the latter part of the previous and present semester. All analyses were conducted separately by gender. The Doubly Multivariate MANOVA method of repeated measures analysis was used to simultaneously test differences in change in sets of dependent variables, such as self-perceptions, between groups. Theory regarding self-esteem structure and Ajzen and Fishbein's Theory were generally supported. Although females from both groups demonstrated significant improvements in physical self-perceptions, the group X time interaction was not significant. Similarly, further analyses failed to demonstrate that greater psychological or behavioral change had taken place in the treatment group. Explanations for these results are speculative, but the treatment group appeared to be high on exercise commitment on entry. Alternatively, greater practical involvement in exercise may be necessary for deep-seated change. In addition, seasonality may have dominated the activity findings.

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PERSONAL INVESTMENT IN WEIGHT MANAGEMENT: GENDER DIFFERENCES AMONG ADOLESCENTS.

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Adolescent obesity is a prevalent health problem associated with serious long-term physical and psychosocial outcomes. Little, however, is known about the psychosocial determinants of adolescent weight management. This investigation utilized Personal Investment Theory to examine gender differences related to these determinants. This theory proposes that investment in a health-related behaviors such as weight management is dependent upon the meaning of the behavior to the person. This meaning is comprised of four interrelated facets: personal incentives, sense of self perceptions, perceived options, and perceived barriers. A comprehensive questionnaire which assessed personal incentives and perceived options for weight management was administered to 394 male (n=207) and female (n=187) adolescents (M age = 15.0). In addition, physiological indices (e.g., height, weight) were assessed. Data were analyzed by descriptive statistics, independent sample t-tests, discriminant analyses, and multiple regression procedures. The most important incentives, or reasons, for weight management were promoting health and fitness, maintaining self-concept, and disease prevention. Independent sample t-tests indicated that females scored significantly higher than males on the incentives of maintaining self-concept, clothing fit/style, and appearance. Males scored significantly higher on the weight management incentive of being macho. Discriminant analysis, using groups defined by gender, revealed a significant function which correctly classified 76.31% of all subjects based on their weight management personal incentives. The most common perceived options, or strategies, for weight gain included increasing caloric intake, weight lifting, eating a balanced diet, and enaging in sport/exercise activities. The most frequently cited options for weight maintenance were engaging in sport/exercise activities and eating a balanced diet, while the most common options for weight loss were engaging in sport/exercise activities, decreasing caloric intake, and eating a balanced diet. T-tests revealed that females listed more perceived options, or strategies, as well as more positive options for weight management than males. The results from this study supported the application of Personal Investment Theory to the study of weight managment of adolescents. Knowledge of the motivational determinants of weight managment provides valuable insight for further research as well as the development and implementation of effective health education interventions.

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THE COLLABORATIVE TEACHING-LEARNING MODE: THE EFFECTIVENESS OF HEALTH EDUCATION PROFESSORS IN UTILIZING THE COMPONENTS OF ADULT LEARNING PRINCIPLES.

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This study investigated the extent of support by health education professors for the principles of adult learning congruent with the collaborative teaching-learning mode as measured by Conti's Principles of Adult Learning Scale. Systematic random sampling identified a national sample of 400 university or college professors of health education. The usable responses consisted of 203 respondents, mostly male of full professor rank teaching a combination of graduates and undergraduates from various disciplines. Established normed scores served as the base; a two-tailed Z-Test was used to analyze the test results. The Z scores indicate a level of significance for all components except the component addressing the Assessment of Student Needs. Health education professors scored higher than the norm on two components; Relating to Experience and Flexibility for Personal Development. This reflects a positive effect within the utilization of adult education principles. Health education professors scored significantly lower on four components; Learner Centered Instruction, Personalizing Instruction, Climate Building and Participation in the Learning Process. The results indicate an unstable interactive effect health education professors produce in the learning process. While high component scores on relating to experience and flexibility for personal development are assets, lower component scores may indicate the inability of health education professors to effectively utilize the components of adult learning principles.

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COMPARISON OF HISPANIC AND WHITE ADOLESCENTS REGARDING SUICIDAL THOUGHTS, BEHAVIORS, AND THE USE OF ALCOHOL. Steven R. Furney, Southwest Texas State University.

Significance. Both suicide and alcohol abuse have been recognized as significant health concerns of the adolescent population. Due to the seriousness of these behaviors, emphasis needs to be focused in order to facilitate preventative measures.
Purpose. The purpose of this study was to obtain information about the incidence and correlates of suicidal thoughts, behaviors and alcohol use among a sample of hispanic and white high schools and junior high schools.
Methodology. A questionnaire consisting of 119 items was administered to 717 subjects. The questions were adopted from those used by the Institute of Social Research at the University of Michigan, developed by the author or adopted from various sources. Questions focused on suicidal intentions, ideations, attempts, unhappy life, and alcohol use and abuse by ethnic-gender groups. A total of 717 adolescents were included in this study which included 378 hispanic and 339 white subjects.
Findings. Of the 717 questionnaires administered 36 were excluded because they failed to follow directions or did not complete the instrument. Usable data were received from 681 subjects. It was found that hispanics were slightly more likely than white subjects to report they had seriously considered a suicide attempt, that they had gone so far as to plan one, and that their lives were unhappy. These differences, however, were not statistically significant. The reason most often given for considering suicide for all ethnic-gender groups was to escape emotional pain. Regarding use and abuse of alcohol it was found that white females were significantly more likely than hispanic females to report the use of alcohol during their lifetimes, during the last year and during the last month. White males, in comparison to hispanic males, were also significantly more likely to report the use of alcohol within the last month. However, hispanics of both sexes were significantly more likely than their white counterparts to indicate they had five or more drinks in a row on two or more occasions within the last two weeks. Pearson product moment correlations indicated significant ($p < .01$) correlations between alcohol/suicide and emotional pain, early drug use, pessimism, friends' drug use, unhappy childhood, self-concept, and family dysfunction. Conclusions based on these data suggests that education and counseling may be focused on high risk individuals to help reduce problems of adolescent suicide and alcohol abuse.

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CO-AUTHORSHIP: A NECESSARY REALITY AND A CREDIBILITY CONCERN.

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A significant increase in multiple authorship has occurred in many areas of research writing during the 1960's and 1970's (currently a mean of 2.3 authors per article, Zook, 1987). Several important reasons help to explain the multiple author phenomenon: "publish or perish" - as a means for meeting the demands of tenure and promotion, small groups enhancing the ability to maintain current review knowledge of a topic, combining partial expertise to solve problems, and the need for interdiscipline interaction as the research front crosses disciplines, campuses, and nations. Mahoney (1985) cites evidence that the multiple authorship phenomenon has resulted in a reward system that gives differentiated credit, although not necessarily equitable, to members of the research team. Multiple-authors generally receive less credit than sole authors, and untenured junior authors and student team members often receive much less credit than senior faculty in spite of their significant effort contribution. Administrators and faculty members in Health, Physical Education, and Recreation from 35 research oriented institutions were surveyed regarding perception and practices related to co-authorship. Trends related to increased co-authorship, need for co-authorship, and potential problems in the reward process for co-authors were indicated. Non-tenured faculty indicated the greatest concern toward equitable credit, while administrators indicated substantial difficulty in evaluating credit of multiple authored research. Few respondents felt a need for a complex system identifying all specific relative contributions of participants in co-authorship as proposed by Schmidt (1987), yet the majority indicated a need for clarity in identifying the contributors role. In general, the data revealed that (1) quantitative research in the areas most closely related to "hard" science was most equitably evaluated, and that (2) quality of research and writing were critical factors in determining the level of credibility. Publications and presentations that are subjected to blind review are perceived as receiving the most equitable and critical evaluation. Furthermore, administrators feel that individuals delivering a presentation should receive major credit in the reward system.

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EFFECT OF THREE CONDITIONS OF SUMMARY KNOWLEDGE OF RESULTS UPON RETENTION OF ACCURACY IN A FORCE PRODUCTION TASK.

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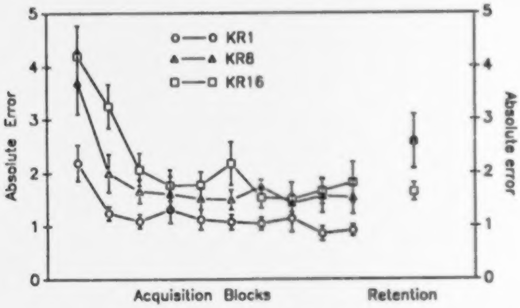
Schmidt, Shapiro, Winstein, Young, & Swinnen (1987) have demonstrated superior retention performance for subjects provided summary knowledge of results (KR) as opposed to concurrent KR in an positioning task (i.e. linear slide). The purpose of the present study was to determine the effect of 3 conditions of summary KR upon retention in a isometric force production task. The task was to accurately reproduce 50% of each subject's maximum voluntary contraction using the right elbow extensors. Subjects were in a supine position with elbow at 90 degrees flexion. Acquisition conditions were as follows: 1) KR1 = concurrent KR, 2) KR8 = summary KR after 8 trials and 3) KR16 = summary KR after 16 trials. Retention was tested after 24 hrs under no KR conditions. Subjects in the KR16 group demonstrated performance superior to that of the KR1 and KR8 condition that did not differ from each other. The KR16 group also demonstrated an increased consistency in performance. The finding of increased consistency is interpreted as an "improvement" in the robustness of the motor memory or motor program. Here, as noted by other authors, (Schmidt, et. al., 1987) the superior performance under the KR16 condition can be interpreted as reflecting increased cognition and perhaps an overall increase in the activity of the association cortices related to visual, perceptual and motor cornices which have been related to memory (Alkon, 1989).



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EFFECTS OF INSTRUCTION ON THE VISUAL RETENTION OF PERFORMANCE & OBSERVATIONAL FOCUS OF PHYSICAL EDUCATION MAJORS.

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The purpose of this study was to determine the effects of two training protocols on the visual retention (VR) of select sport skills and the observational focus (OF) of undergraduates. 75 majors were randomly allocated to treatment groups which were randomly assigned to one of three treatment conditions; model-based (MB), traditional-based (TB) and Control (C). Prior to and after treatment, subjects were administered the Utah Skill Analysis Test. TB & MB subjects received 45 hours of instruction, with differences in treatment occurring respective to the analytical approach emphasized. TB subjects received instruction emphasizing quantitative biomechanical constructs. MB subjects received instruction utilizing a qualitative field-based approach to movement analysis. C subjects received no systematic teaching. A 3 X 2 (Group X Time) ANOVA w/rep. measures conducted on the VR data revealed a significant group effect ($F_{2,72}=3.25, p<.05$) and a significant time effect ($F_{1,72}=4.63, p<.05$). A significant treatment effect was noted in the group x time interaction ($F_{2,72}=23.46$, $p<.001$). Post hoc analyses indicated MB subjects performed better than TB or C subjects as a result of treatment. A 3 X 3 (Group X Temporal Phase) ANOVA w/rep. measures conducted on the post treatment data revealed significant group effects ($F_{2,72}=11.76$, $p<.001$) and a significant group X temporal phase interaction ($F_{4,144}=2.73, p\ .05$). MB subjects remembered preparatory and follow through aspects of movement better than TB or C subjects. A 3 X 3 (Group X Spatial Component) ANOVA w/rep. measures revealed a significant group effect ($F_{2,72}=9.76$, $p<.001$) and a significant spatial component effect ($F_{2,144}=19.25$, $p<.001$). MB subjects remembered leg movements more accurately than TB or C subjects. All subjects remembered trunk movements more accurately than other spatial components. It was concluded that qualitative field-based training may facilitate visual retention of performance to a greater extent than the quantitative approach examined, and that trends in observational focus may be influenced by systematic observational training. Interpretations in gain data tend to be supportive of past research findings in qualitative sport skill analysis studies.

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A DESCRIPTIVE ANALYSIS OF ADVENTURE THERAPY PROGRAMS FOR SUBSTANCE ABUSERS. Michael A. Gass, University of New Hampshire.

The purpose of this study was to identify and describe the characteristics of existing programs that use adventure therapy for substance abusers. The description of such programs included (1) identifying the type of clients in adventure therapy programs, (2) the intended goals of such programs, (3) models utilized for treatment, (4) methods of reimbursement, (5) staff information, and (6) the perceived and objective evaluation of such programs. Based on material supplied by affiliated professional organizations and extensive literature searches, 61 programs in the United States were identified as using adventure experiences with chemically dependent populations. Each of these programs was mailed a letter describing the purposes of the study, a seven page questionnaire asking specific questions about their treatment program, and a self-addressed stamped envelope. Fifty of these programs (an 81% response rate) completed the survey. Prior to distribution, the questionnaire was critiqued by five qualified external reviewers to enhance the validity of the survey. Results of the study provided a wealth of information in all six research categories. Most substance abusers (86%) were referred by medical staff or therapeutic staff for specific treatment prescriptions, yet there was a lack of clarity in behavioral, psychosocial, and cognitive therapy goals in adventure therapy treatment programs. Primary users (30%) of adventure therapy programs for substance abusers were adolescents between the ages of 15-17, and the age range of participants was 5-80 years old. The most common adventure experiences were those lasting less than one day and consisted of ropes course activities. Adventure experiences were included in the total treatment costs at 65% of the programs and 76% of programs received third party payments for adventure therapy. Recommendations based on the study include the need to (1) research on the specific as well as long term effects of such programs, (2) identify prescriptive treatment modalities for specific client needs, (3) use adventure programs for diagnostic as well as treatment purposes, (4) identify the treatment potency of particular adventure mediums, (5) determine the affects of combining clients of different abusive substances together in programs, and (6) determine the effects of introduction of new clients into existing groups on adventure experience.

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EFFECTS OF CHRONIC TRAINING ON CARDIAC DIMENSIONS OF YOUNG SWIMMERS.

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The purpose of this study was to observe the effects of long-term chronic endurance training on the cardiac dimensions of young swimmers ages 13-15 years. The subjects for this study were (N=31) adolescent competitive U.S.S. registered swimmers (females N=16; males N=15) who had been in systematic training for a minimum of 48 months. Results of echocardiographic measures were compared, using a one sample T-test, with previously established normaltive data for children to determine training influences on cardiac dimensions. Data were analyzed according to Weight and BSA. Echocardiograms were obtained in the resting supine position using a Smith Kline Instruments Company Ekloine 20A with scans being obtained in a M-mode setting. Measurements were determined for the following variables; left ventricular internal dimension at end-diastole ($LVID_d$), left ventricular internal dimension at end-systole ($LVID_s$), interventricular diastolic septal thickness (IVS), left ventricular diastolic posterior wall thickness (LVPW), left atrial dimension (LAD), right ventricular dimension (RVD), and aortic root dimension at end-diastole (AO). All data obtained exceeded or were within the normal expected range for these age groups. Absolute $LVID_d$, $LVID_s$, and LAD dimensions demonstrated non-significant differences when compared by weight to normaltive data. Weight related significant differences ($P < 0.01$) were noted for LVPW, IVS, RVD for both female and male subjects. When these parameters were adjusted to BSA these differences continued to exist for LVPW and RVD but IVS remained significant only for males. In addition, a positive significant difference was noted for BSA adjusted means for male measures of AO, but not for females. These sex related differences may have been due to the greater lean body mass of the male swimmers. Results of this study suggest that chronic swimming training may increase ventricular septum and left posterior wall thickness. Therefore, chronic training in young swimmers may result in an increase in left ventricular mass with a normal left ventricular internal volume accompanied by a significant increase in RVD.

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DANCE PERFORMANCE STYLE: AN ANALYTICAL APPROACH TO THE ELEMENTS OF ARTISTIC PROCESS. Dr. Betsey Goodling Gibbons, Washburn University

The purpose of this study was to develop a theoretical framework and conceptual model which would enable the observer to identify and analyze stylistic aspects of performance in dance. The procedure was comprised of four major parts. First, an examination of artistic process formed the basis for an analytical approach to dance performance process. Second, an examination of style in music, drama, and the visual arts was used as the basis for identifying the components which comprise, contribute to and affect style in dance. Third, the writings of critics, performers, choreographers, aestheticians and movement analysts concerning the nature of the performance processes of dancers were analyzed. Fourth, information gained from these inquiries was synthesized and a framework for the study of performance style in dance was formulated. The conceptual analysis resulted in the development of a theoretical model to illustrate the components of artistic process style. Elements of artistic process were identified as disposition to act, schema, strategies, and training and temperament. The model illustrates how these elements interact to create a distinctive style for the individual performer which then transcends the sum of the elements.

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THE SMOKE-FREE 2000 CAMPAIGN IN TEXAS: AN ANALYSIS OF FACTORS INFLUENCING THE DIFFUSION OF CLASSROOM MATERIALS. Phyllis Levenson Gingiss, University of Houston; Nell Gottlieb, The University of Texas at Austin; Susan Brink, University of Texas Center for Health Promotion Research.

Smoke-Free 2000 represents major national, state and local commitments of volunteer and agency resources by the American Cancer Society, American Heart Association and American Lung Association. 1988-89 marked the first year of a 12-year plan to provide children of the class of 2000, their parents and their teachers with tobacco prevention education (TPE) materials. To maximize such efforts, it is essential to understand factors likely to influence the diffusion of innovative materials. The focus of the first year of Smoke-Free 2000 was distribution of a teaching kit to all first grade teachers. The kit was based on five sequential story cards using the character of Max the Robot to emphasize a smoke-free environment. A two-page questionnaire based on diffusion literature was mailed to 313 randomly sampled first grade teachers in Texas to assess their positions towards the materials in the four diffusion phases: dissemination, adoption, implementation and maintenance. Of the 216 respondents, 44.7% reported receiving the materials. Among those 95 receiving the kit, 64.2% had used the kit by mid-May and an additional 25.3% intended to use it before the end of the school year. Among the users, 96.8% intended to use the kit again next year. 45.1% of respondents had taught TPE previously. Teachers' attitudes towards use of the materials were assessed. Over 90% agreed with items concerning the appropriateness of teaching TPE in the elementary schools, the availability of support for teaching TPE, their confidence in teaching the subject, and the effectiveness of TPE in preventing tobacco use. While 97% indicated students should be taught to protect themselves from secondhand smoke and 85% felt that student should be taught strategies for discouraging parental smoking, only 70% agreed smoking should not be permited in school. There were no differences in these attitudes between teachers who had or had not received the materials, indicating a similar readiness to adopt and use the TPE materials. However, teachers who previously taught TPE were more likely (<.05) to agree that 1st grade is an appropriate time to begin TPE and to feel confident and comfortable teaching TPE. Level of implementation varied considerably, and was associated with teachers' previous use of TPE materials. Less than half of users spent over an hour on the five lessons. Few (40.2%) integrated the materials into other lessons, recruited a guest speaker (23.1%), developed additional materials (18.5%), or requested additional agency materials (4.3%). Influential characteristics of the dissemination plan used in the state will be presented, along with recommendations for ways the data in this report can be used to help state and local coalitions enhance distribution and utilization of materials.

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AGE-RELATED DIFFERENCES IN THE CONTROL OF SPATIAL AIMING MOVEMENTS.

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The purpose of this experiment was to determine where the slowing in movement execution processes occurs in older adults in spatial aiming movements. A second purpose was to determine whether control differences would be apparent between young and older adults. Most typical experiments cited in the age-related literature have failed to examine movement execution processes beyond simple movement time (MT); thus, little is known about how movements are controlled and executed. In the present experiment, movement execution processes were manipulated by using a Fitts' (1954) type task to examine what effect the Index of Difficulty (ID) would have on performance and MT in young and older adults. The ID can be manipulated by changing the spatial accuracy or the amplitude of the movement. Kinematics (displacement, velocity, acceleration) were used to examine the response characteristics of movements. Twelve young adults with a mean age of 23.2 years (22-30 yrs.) and 12 older adults with a mean age of 72.9 years (67-80 yrs.) performed simple horizontal aiming movements to targets on a Cal Comp 9100 digitizing tablet. The movements were either 10 cm or 20 cm in amplitude to targets which were .5 cm, 1.0 cm, or 2.0 cm in width. These movement amplitude and target width combinations allowed for six movement conditions with ID's ranging from 3.32 to 6.32. Five blocks of 42 trials (7 trials at each movement condition) were performed so that reaction time (RT), MT, displacement in the X and Y direction, and resultant velocity and acceleration patterns could be analyzed. A 2 x 6 (Age x Movement Condition) repeated measures ANOVA was used to analyze the dependent measures. In addition, the kinematic patterns of movements with similar ID's were examined to determine how movements are controlled when executed with similar MTs. The overall results for both young and older adults support the prediction that MT increases as a function of ID (Fitts, 1954) with older adults being significantly slower and more affected by ID. An examination of the velocity and acceleration profiles indicate that older adults produce movements that display very different response characteristics from those of young adults depending on movement amplitude and target width. Older adults display slightly more skewed velocity profiles, asymmetrical acceleration profiles, and show more movement adjustments than young adults. Additionally, it was found that older adults spend a greater amount of absolute time in the deceleration and homing phase of movement. Taken together, these results suggest that older adults emphasize accuracy of response and are concerned with the latter or control phase of a movement in order to contact a target accurately.

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SEQUENTIAL PLANNING AMONG EXPERIENCED TECAHERS: TEACHING IS NOT CLINICAL PROBLEM SOLVING.

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It has been recently shown that teachers plan for instruction and make decisions during lessons in ways that are quite differnt from clinical approaches carried out in other professions (Kagan, 1988). It has been suggested that teachers carry out planning and professional action in a sequential rather than an hierarchical fashion (Leinhardt & Greeno, 1986). That is, teaching is characterized by planning decisions that anticipate having to change activities entirely depending upon feedback gathered during instruction. They do not gradually refine solutions to problems until finding the one appropriate answer to a professional problem -- they shift among routines that meet the needs of present circumstances during instruction. Further, they plan for these shifts in lesson focus before teaching. The present study used the expert-novice paradigm for research. Ten experienced and ten novice physical education teachers planned out loud how they would teach lessons to elementary physical education students. Audio recordings of teachers' verbal statements during planning were coded for number of activity decisions and instructional strategy decisions made. Experienced teachers were found to make many more planning statements about how they would sequentially change the lesson based upon observations of student performance than novices (117 vs. 63). These differences were statistically significant at the p .05 level for the categories of management, assessment of studetn performance, focusing student attention, anduse of equipment. The experienced teacher planned for the implementation of routines for instruction before entering the gymansium. Novices evidenced no such planning or anticipation of instructional strategies that might be needed during a lesson. The findings support the notion that teachers use sequential planning when preparing for instruction.

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THE EFFECT OF EXERCISE ON SELECTED ASPECTS OF ACTIVE ADULT, FEMALE SEXUALITY.

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It was the purpose of the study to survey and describe the effect of exercise on female sexuality. Approximately 500 active, adult females, age 18 to "over 45" years, served as subjects. The women either participated "regularly" or "sometimes" in aerobic dance, calisthenic, or weight training exercise classes. The survey consisted of an anonymous, self report inventory mailed to 825 active adult women. The rate of return was approximately 61 percent. Distribution, execution, and collection of the questionaire was facilitated by thirty-one exercise instructors who had received their aerobic certification from the investigators' institution. Demographic data on age, marital status and children, exercise frequency, and exercise modality was generated. The selected aspects of sexuality were; orgasm, sexual arousal, libido, satisfaction, substitution and menstruation. Results of the descriptive analysis of the data indicated that; 6.8% of the sample reported experiencing spontaneous orgasm while exercising, 17.0% reported becoming sexually aroused, 28.7% reported an increase in libido immediately following exercise, 25.7% reported an increase in the frequency of coital orgasm since beginning their exercise programs, 58.5% reported greater overall satisfaction with their "sexual self", 27.0% have used exercise for the release of sexual tension. Exercise affects the regularity of the menstrual cycle in 25.8% of the respondents and, of the 54.6% of the subjects reporting an affect on menstrual/premenstrual symptoms (cramps, bloating, irritability or moodiness, changes in appetite, fatigue), 97.4% reported that exercise helped relieve the symptoms. This study identified certain previously undocumented effects of exercise. Controlled experimentation regarding exercise as a contributing theraputic modality for diagnosed adult female sexual dissatisfaction, dysfunction and menstrual related symptoms is warranted and recommended.

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INDEPENDENCE OF MOVEMENT COMPLEXITY AND FOREPERIOD EFFECTS ON RESPONSE PREPARATION PROCESSES. Mark A. Guadagnoli & T. Gilmour Reeve, Motor Behavior Center, Auburn University, Alabama.

Independently, movement complexity, method of foreperiod presentation (blocked or random), and foreperiod duration have been shown to effect response preparation. The present investigation examined the interactive, rather than the independent, nature of these variables. The 3 experiments used a simple-RT paradigm in which the movement to be made was known prior to stimulus onset. In separate blocks of trials, a right-hand response was executed that had either 1 or 3 movement components. Experiment 1 manipulated only movement complexity (1 or 3 components) and the ANOVA revealed an effect for movement complexity, replicating previous findings (e.g., Henry & Rogers, 1960). With a constant foreperiod (750 ms), RTs were faster with the 1 than the 3 component movement. Experiment 2 manipulated both method of foreperiod presentation (blocked or random) and duration of foreperiods (250, 1250, 2250 ms). The ANOVA revealed a main effect for presentation, with RTs being faster for blocked than random presentations. The analysis also revealed a Presentation x Duration interaction. For blocked presentation, RTs were an increasing function of foreperiod duration while the inverse relation held for random presentation. Experiment 3 examined the interactive nature of movement complexity, foreperiod presentation, and foreperiod duration. The analysis revealed a main effect for movement complexity and a Presentation x Duration interaction, both of which replicated previous findings that movement complexity, foreperiod presentation and duration influenced RT. However, method of presentation and foreperiod duration were independent of movement complexity, indicating the additive nature of the complexity effect and the foreperiod effects on response preparation processes.

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A CORRELATION OF STUDENT BEHAVIOR ON ATTENDANCE AND GPA BEFORE AND AFTER ATTENDING SUPPORT GROUPS.

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Student Assistance Programs are being implemented in public schools across the Nation to provide a means of supporting students returning from chemical dependancy treatment programs. Very little research has been conducted to evaluate the impact of such programs on student behavior and performance. This study delimits the scope of the evaluation to aftercare groups in four schools in central Washington.

Using a "behavior of concern" checklist, teachers in participating schools were trained to identify and refer students for assessment for chemical dependancy. Students who were identified as needing CD treatment were also scheduled to attend aftercare support group when returning to school following treatment. Standard scores for all students in the program were compared between the semester prior to intervention and the term following eight weeks of aftercare group participation. GPA, attendance, disciplinary referrals, truancy, and violations with the law were the standard scores used for comparion. Futher students were asked to evaluate their own communication skills before and after participating in eight weeks of aftercare groups.

Using the Pearson correlation positive changes were found to be significant following participation in eight weeks of aftercare group attendance for GPA, attendance, and communication skills. Significant negative correlations were found on disciplinary referrals, truancy, and violations with the law. Students who participated in CD treatment, but did not attend support group did not show significant correlations prior to intervention and after attending only treatment.

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PERSONAL AND SOCIAL MOTIVATIONS AS PREDICTORS OF ALCOHOL AND OTHER DRUG USE AMONG COLLEGE STUDENTS.

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A major institutional drug use survey was conducted at a large, southwestern U.S. university. The survey instrument consisted of sections that covered: personal substance use, perceived substance use by other students, behaviors associated with substance use, motivations, consequences, and attitudes concerning substance use, and demographics. The survey consisted primarily of Likert-type scales and totaled 170 items. The psychoactive substances of interest were: alcohol, marijuana, cocaine, amphetamines, barbiturates, tranquilizers, psychedelics, and designer drugs. An index, consisting of frequency, intensity, and duration of use, for each substance was created. The reliability of the survey was excellent (coefficient alpha = .96). The survey was administered via direct mail to a simple random sample of 2200 students. The net number of responses was 1013 or 46.04%. A purpose of the study was to discern the relationship between motivations to use substances and actual self-reported substance use. Specifically, the degree to which personal and social motivations were able to predict drug use behavior would have direct programming implications. A stepwise multiple regression analysis was computed using each of the 8 drugs listed above as criterion variables and personal and social motivations as the predictor variables for each model. The results indicated the most parsimonious model for predicting alcohol use was social motivations as a single predictor (R-squared = .37). Beyond alcohol use, neither personal nor social motivations were practically significant predictors of drug use. Thus, the motivations for drug use that were reported by students and are commonly assumed by program planners to serve as catalysts for drug use, were not linearly related to actual drug use, except for alcohol. It is possible that while students are in touch with their reasons for using alcohol, they experience cognitive dissonance or denial with regard to their motivations for using drugs that are less socially acceptable and/or are illicit.

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SELF-REPORTED DRUG USE INDICES AS PREDICTORS OF ADVERSE CONSEQUENCES AMONG COLLEGE STUDENTS.

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A major institutional drug use survey was conducted at a large, southwestern U.S. university. The survey instrument consisted of sections and sub-sections that covered: personal substance use, perceived substance use by other students, behaviors associated with substance use, motivations, consequences and attitudes concerning substance use, and demographics. With the exception of the demographic items, the survey consisted of Likert-type scales. The instrument had a total of 170 items. The 8 psychoactive substances of interest were: alcohol, marijuana, cocaine, amphetamines, barbiturates, tranquilizers, psychedelics and designer drugs. An index consisting of the frequency, intensity and duration of use was created for each substance. The reliability of the survey, less the attitude scales, was excellent (coefficient alpha = .96). The reliabilities of the attitude scales ranged from .76 to .84. The Drug Use Survey was administered via a direct mail to a simple random sample of 2200 students. The net number of responses was 1013 or 46.04%. A purpose of the study was to explore the relationship between self-reported drug use and 4 types of adverse consequences commonly reported by substance users. A step-wise multiple regression analysis was computed for each of the 4 criterion variables (i.e., academic, social, physical and aggressive/violent consequences). The predictor variables were the 8 drug use indices. The results indicated that the most parsimonious model for predicting adverse academic consequences included designer drugs, alcohol and barbiturate use as predictors (R-squared = .32, F=96.11, $p<.0000$). The adverse social consequences index was best predicted by alcohol and barbiturate use (R-squared = .23, F=120.9 $p<.0000$). The best model for predicting adverse physical consequences included alcohol use (R-squared = .33, F=408.6, $p<.0000$). Aggressive/violent consequences were best predicted by alcohol and barbiturate use (R-squared = .27, F=151.6, $p<.0000$). A primary implication of this study would be the need for educational programs to address the adverse consequences of alcohol and barbiturate use. Additionally, the potentially fatal interaction from the synergistic effects of combining alcohol and barbiturates deserves attention. These implications are especially salient given that barbiturates are used by only a small percentage of college students, yet in combination with alcohol becomes a moderately strong predictor of a cross-section of adverse consequences.

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IMPLICIT VERSUS EXPLICIT LEARNING OF BASKETBALL RULES.

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Current theories in cognitive psychology propose two distinct modes of learning, one that results in explicit knowledge of rules and the other that produces implicit knowledge capable of direcxting behavior without explicit knowledge of rules. Additionally, it has been proposed that implicit learning mechanisms are more powerful for complex rules in rich stimulus environments, such as those found in open skills in sport settings. The present study examines the efficacy of implicit and explicit learning processes when learning basketball rules. Forty subjects with no previous basketball experience were trained using a videotape of 20 college basketball clips showing defensive fouls, offensive fouls, or clean plays. The explicit group received a rules sheet which could be studied during the training phase, and was asked to describe why each clip was called as it was. The implicit group was simply asked to describe the action as they saw it. The mixed group saw the first portion of the training clips with no rules, and the second portion with the rules sheet. The control group received no rules and had no training phase. The testing phase consisted of 15 new clips that all subjects classified as offensive fouls, defensive fouls, or clean plays. Subjects worked at their own pace throughout the experiment and could use the rewind, fastforward, slow motion and/or pause of the VCR. Results showed that the control group had significantly more errors than the other three groups, but there was not statistical difference between the explicit, implicit, or mixed conditions. Also, the implicit group took less training time than the mixed group, while the explicit group was not different from either. Implicit training was as effective for learning rules in an open skill environment as explicit or mixed training. That is, close observation of complex rule examples results in equivalent levels of knowledge compared to explicit rule training. Further, this level is achieved in significantly less time.

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GENDER DIFFERENCES IN DESIRABLE BODY IMAGES AMONG ATHLETES AND NON-ATHLETES.

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Studies involving the articulation of body schema have found that women were dissatisfied with their current image and, irrespective of body composition, expressed a desire for a thinner shape. Conversely, men have generally expressed satisfaction with their current body image, although, when comparing athletes and nonathletes, some researchers have found an association between athletic participation and an increased accuracy in body image perception. However, all the studies have been limited to single sex analyses and/or differences between various sports. None have specifically investigated differences between men and women athletes and non-athletes. This study sought to determine the relationship between gender and body image perception among athletes and non-athletes. Consequently, 212 men and women athletes and non-athletes completed a questionnaire which asked them to identify from a nine figure body silhouette scale their current image and the image that they think is most ideal. The scale consisted of a series of monotonic increases ranging from thinnest (=1) to largest (=9). Subjects were also asked to estimate the percentage of university students of their same height and sex who were heavier than themselves. Results of t-tests showed no significant differences for men based upon athletic participation and that both athletes and non-athletes were satisfied with their body image. However, when comparing current image and ideal image, significant differences were found for both women athletes ($t = 4.6$, $p<.001$) and women non-athletes ($t = 6.49$, $p<.001$). Furthermore, assuming an objective response of 50% when estimating the percentage of students/athletes heavier, women athletes (47.42%) and women non-athletes (38.1%) overestimated their weight, whereas both male groups (52.72%) slightly underestimated their weight. Clearly, the data from this study add support to previous research which has consistently documented women's dissatisfaction with their body image and, in this case, find that athletic participation has no significant effect upon this perception.

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COMPARISON OF MALE AND FEMALE FIFTH GRADERS ON PHYSICAL FITNESS PERFORMANCE.

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The purpose of this study was to compare male and female performances on the AAHPERD Health Related Physical Fitness Test. The sample consisted 149 male and 136 female fifth grade students enrolled in public school in Conway, Arkansas. The test items included the mile run, situps, skinfold measurements (sum of triceps & subscapular), and sit & reach. The fitness test battery was administered by the local physical education teachers in the spring of 1989 as part of the regular physical education curriculum. The teachers had received inservice training in the administration of the fitness test and have used the items extensively over the last several years. Students who completed all test items were included in the study. The data were analyzed using a multivariate design. Hotelling's multivariate test of significance indicated a significant difference between the performance of the males and females. The resulting approximate F value of 19.81 was significant at the .01 level. As a follow-up procedure t-tests were performed for each dependent variable. Because of the univariate follow-up procedures a conservative alpha level of .001 was set to identify significant differences. A significant difference was found between male and female performances on all items except the skinfold measurements. The t values for the mile run, situps, and sit & reach were 5.54, 5.82, and 3.85, respectively. The males performed better in the mile run (9:55 vs. 11:23) and in situps (36 vs. 32). The females performed better in the sit & reach (30.8 vs. 26.0). Based on the results of this study it appeared that male and female fifth grade students differed in performances on the mile run, situps, and sit & reach. However, there was no significant difference between fifth grade males and females on skinfold measurements taken at the triceps and subscapular.

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DISABILITY CONDITION, TRAINING AND EXPERIENCE: THEY DO MAKE A DIFFERENCE IN PERCEIVED COMPETENCE AND ATTITUDE.

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The primary purposes of this study were to determine: (1) the effects of disability condition label on physical educators' perceived competence in and attitudes toward teaching students with disabilities and (2) to investigate the characteristics of physical educators that are associated most strongly with their perceived competence and attitudes. The present study extends prior research in this area by sampling a large and more representative group of physical educators and examining more comprehensive sets of disability conditions (behaviorally disabled, BD; mentally disabled, MD; learning disabled, LD; observable physically disabled, OPD; and nonobservable physically disabled, NPD) and characteristics of physical educators (age, gender, educational training, teaching experience, exposure to disabled individuals within and outside of the school setting, community type and school type). Three hundred and twelve of 500 (63%) physical educators randomly selected from all physical educators in the state of Iowa, completed an investigator designed questionnaire and a version of the Physical Educators' Attitude Toward Teaching the Handicapped-II (PEATH-II) scale developed by Rizzo (1988). Results from repeated measures ANOVA analyses revealed highly significant differences among disability conditions ($p < .001$) for both perceived competence and attitudes. Physical educators' perceived competence was highest for students labeled LD followed by NPD, then OPD, then BD, then MD. Attitudes were most favorable toward students labeled LD followed by NPD, then OPD, the MD, then BD. Perceived competence had significant ($p < .05$) positive correlations with adapted physical education coursework and years teaching disabled individuals and a significantly negative correlation with years in teaching physical education. Attitude had significant positive correlation with adapted physical education coursework and significantly negative correlation with age and years in teaching physical education. Perceived competence and attitude were more highly correlated with each other than with any other variable in the study. The present results highlight the importance of training and experience in creating positive teaching environments for students with disabilities and demonstrate that physical educators' beliefs are strongly influenced by the disability condition of the student.

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INHABITING LEVEL AND SKILL PROFICIENCY EFFECTS ON BOYS' SATISFACTION, INVOLVEMENT, AND AFFECTIVE EXPRESSION IN A GAME SETTING. Melissa L. Heston, University of Northern Iowa.

In this study, the effects of inhabiting level (INH) (Wicker, 1979) and skill proficiency (PROF) on the satisfaction (SAT), involvement (INV), and affective expression (AFF) of 8-, 9-, and 10-year-old boys participating in a game setting were examined. Inhabiting level varies as a function of the number of active participatory roles in a setting and the number of people available to fill those roles. Overinhabited settings have more people than needed to fill such roles, while underinhabited settings have fewer people than needed. Participants in underinhabited settings generally have more responsibilities and duties to perform, and feel more competent and versatile than participants in overinhabited settings. These effects have been found to be more pronounced for marginally competent setting members. Thirty-six boys in each age group were assessed on a throw for distance and accuracy task, and classified as low, medium, or high PROF players. Stratified random assignment was then used to create age-constant teams consisting of one low, one medium, and one high PROF player. Randomly paired age-constant teams then competed under conditions of over-, under-, and adequate inhabiting. Inhabiting level was manipulated by varying the number of active roles within modified versions of Keep-away. A forced choice questionnaire was used to assess relative satisfaction with each game. A trained observer assessed each child's level of involvement and affective expression several times during each game. Data were analyzed using repeated-measures ANOVA models. A significant INH by PROF interaction was found for SAT ($p<.05$). Although all three PROF groups rated the underinhabited game as most satisfying, the groups responded somewhat differently to the adequately and overinhabited games. (See Table 1.) A significant main effect for INH was found for both INV ($p<.05$), and AFF ($p<.05$). Children were significantly more involved and expressed greater positive affect in the underinhabited condition. Several implications for current practice and research in the area of children's sport may be derived from these findings.

Table 1. Mean Satisfaction Scores.

	INH level Over	 Adequate	 Under
Low PROF	29.3	25.9	34.8
Medium PROF	20.5	31.3	38.2
High PROF	26.0	26.1	37.9

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EFFECTS OF JET LAG ON DYNAMIC STRENGTH, AND ANAEROBIC POWER AND CAPACITY.

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The purpose of this study was to evaluate effects of travel across eight time zones on strength and anaerobic performance. Nine volunteers, four men of mean (± SD) age 19 ± 2 yr, height 179 ± 6 cm, and mass 72 ± 18 kg, and five women of mean age 19 ± 5 yr, height 165 ± 7 cm, and mass 53 ± 1 kg, flew from Paris and arrived in the USA that afternoon. They were tested on the following mornings. Strength for shoulder press / pull was measured at slow and fast speeds (Str[*s*] and Str[*f*]) with a Hydra-Fitness OmniTron. Wingate Anaerobic Tests (WAnT) were performed on a Monark 864 cycle ergometer with resistances of 0.086 $\text{kp}\cdot\text{kg}^{-1}$ body mass for women and 0.095 $\text{kp}\cdot\text{kg}^{-1}$ for men. Peak power (PeakP) was the highest work rate during 5 sec, and anaerobic capacity (AnCap) was the total work performed during the 30-sec WAnT. Values were expressed relative to body mass ($\text{watts}\cdot\text{kg}^{-1}$ and $\text{joules}\cdot\text{kg}^{-1}$, respectively). Data were analyzed using repeated measures ANOVA and *post hoc* comparisons of daily means with baseline.

	Baseline	Day 1	Day 2	Day 3	*p*
Str[*s*]	30.4±3.2	26.3±2.9	29.6±2.9	30.5±3.1	.01
Str[*f*]	19.5±2.3	17.7±2.3	19.7±2.3	19.8±2.3	.04
PeakP	11.2±0.5	10.9±0.5	10.4±0.7	11.4±0.5	.02
AnCap	252±23	231±20	237±21	241±18	.04

PeakP was 7% lower (p<.05 by Duncan but not Tukey), and AnCap was 8% lower (p<.05 by both *post hocs*) on the first day after travel. Both also tended (NS) to be affected on day 2. Str[*s*] was 14% lower (p<.05 by both *post hocs*), and Str[*f*] was 9% lower (p<.05 by Duncan but not Tukey), on day 1. Effects of travel may be confounded by sleep deprivation; but our subjects were rested prior to testing. We conclude that jet lag affects dynamic strength, and anaerobic power and capacity. Although many biological functions are said to be disrupted for 1+ day per time zone crossed, dynamic strength and anaerobic performance are at normal levels within 72 h of arrival.

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THE RELATIVE EFFECTIVENESS OF THREE FORMS OF VISUAL KNOWLEDGE OF RESULTS ON MAXIMAL STRENGTH OUTPUT IN AN ISOKINETIC EXTENSION/FLEXION OF THE KNEE.

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The primary purpose of this study was to investigate the effects of three different forms of visual knowledge of results (KR) on maximal strength output in isokinetic exercise. The task used was an isokinetic extension of the knee, followed by a corresponding flexion. Four experimental groups, each comprised of six male subjects, completed four testing sessions conducted over a four day period. Group one was presented with visual KR in the form of a continuous torque-output display during the acquisition phase. Groups two and three were provided with concurrent and summary torque-time graphs, respectively. Group four received no visual KR throughout the course of this study. A pre-test was completed prior to the start of the acquisition phase while a post-test preceded the final retention test. The acquisition phase consisted of two testing sessions conducted on consecutive days. A one-day retention interval separated the acquisition and retention phase of the experiment. The dependent measure of maximum peak torque (MPT) was collected at low (120 /sec) and high (240 /sec) exercise speeds. Pre- and post-test MPT scores were analyzed using a 2 X 4 (pre-/post test X group) ANOVA for each exercise speed and movement direction. Day-to-day effects were evaluated using a 3 X 4 (day 1/day 2/retention day X group) ANOVA. Significant differences between means were further compared using post-hoc Tukey WSD procedures. Two major conclusions were forwarded on the basis of the experimental findings. First, the more precise information provided by a torque-time graph is most effective at low exercise speeds when sufficient time for information-processing is available. Second, visual KR presented concurrently with performance is a more effective performance and learning variable in maximal-effort isokinetic exercise when compared to visual KR presented according to a summary schedule.

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EFFECTS OF PEER OBSERVATION AND FEEDBACK ON SOCIAL INTERACTIONS DURING GAME PLAY IN JUNIOR HIGH SCHOOL PHYSICAL EDUCATION CLASSES.

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Despite social development being frequently cited as a main goal of physical education, rarely has the effectiveness of interventions aimed at developing social skills in physical activity environments been studied using direct observation methodology. The use peers as change agents has proved a viable solution to developing social skills in other educational settings, and this methodology was initiated as a means of developing "good sporting behavior" throughout the physical education classes of a large junior high school. In this light, the present study examined the effects of a peer observation and feedback intervention on the interactions of students in one coeducational class of 47 students during two different instructional units. Social validation for the intervention was obtained by examining responses by the teacher, the class as a whole, and selected observed subjects. Direct observational data were obtained from videotapes of the same team of six students as they participated in games of volleyball and volley-tennis during 20 class periods over a two month period. Verbal behaviors, which had been recorded using a remote microphone, were scored using event recording. Daily inter-observer agreement scores ranged from 84.6 to 91.7, with a mean of 90.8 percent. Results, obtained using a single-subject alternating treatments design, showed that students increased their positive interaction rates by more than threefold while decreasing their negative interaction rates slightly during experimental conditions. Significant generalization across conditions was evidenced, with more positive interactions and fewer negative interactions occurring during post intervention baseline periods. Data from questionnaires and interviews of students and the teacher substantiated observed data. Generally, students stated that the intervention helped them become better sports, but they preferred to not to interrupt play to serve as observers. Additional research is needed to determine the conditions under which peers can operate accurately and independently as behavior change agents.

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THE EFFECT OF INCLUDING PARENTS IN AN EXERCISE AND NUTRITION PROGRAM FOR CHILDREN.

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The purpose of this study was to compare the effects of including versus not including children's families in a six-week program to teach children about exercise and nutrition. Six classes of fifth and sixth graders were assigned to three different treatment conditions, with one fifth grade and one sixth grade in each condition. The three conditions were a school-and-home treatment condition (N=50), a school-only condition (N=47), and a control condition (N=51). In the control condition, children were given no additional instruction in nutritional or exercise concepts beyond that provided in their regular school curriculum. In the school-and-home and school-only conditions, children were provided with additional in-class instruction and activities relating to healthy nutritional and exercise habits. In the school-and-home condition, the children's parents were also asked to participate by engaging in specific nutritional and exercise activities at home with their family as a "home team." Family teams received weekly points for completing nutrition activities such as following recipes, setting nutritional goals, distinguishing between everyday and sometimes foods, and completing exercise activities. Stickers and other rewards were presented contingent upon family participation. Between-groups ANOVA showed a significant difference at post-test, with Tukey post-hoc comparisons, with the school-and-home group scoring higher than the control group in the sit and reach, tests of exercise knowledge, and tests of nutrition knowledge. Repeated measures ANOVA showed that the school-and-home group with family participation increased their number of sit-ups and decreased their time on the mile run compared to school-and-home children with no family participation. Repeated measures ANOVA indicated that only the control group showed a significant pre- to post-test increase in skinfold, while the other groups showed no significant change. The participating parents (N=34) showed significant pre- to post-test improvements on the sit and reach flexibility and sit-ups tests. Parents showed no significant change in exercise and nutrition knowledge but the individual parents' degree of change in knowledge scores did correlate significantly and positively with those of their children. The "home team" approach was effective in improving some fitness components with children and their parents, indicating that the family unit can be effective in producing lifestyle changes.

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HEALTH-RELATED PHYSICAL FITNESS IN CHILDREN WITH INSULIN-DEPENDENT DIABETES MELLITUS. W. Guyton Hornsby, East Tennessee State University; Kenneth M. Spicer, Medical University of South Carolina.

A recent position statement from the American Diabetes Association states that because of the potential benefits of improved physical fitness, the person with type I (insulin-dependent) diabetes mellitus should not be precluded from participating in physical activity. The purpose of this study was to measure components of health-related fitness in a group of children with type I (insulin-dependent) diabetes mellitus and to compare test scores to established normative data. Subjects were 32 girls and 19 boys (age, 9-14 yrs) attending Camp Adam Fisher, South Carolina's Camp for Children With Diabetes. A battery of test items, consisting of a one mile run, sit-ups in one minute, tricep and abdominal skinfolds, and a sit-and-reach test, was administered over a two day period. Results were converted to percentile scores, using norms developed by testing a representative sample of nearly 3,000 South Carolina school children. A one sample t-test was used to compare percentile scores of diabetic children to the 50th percentile of the normal sample. Children with diabetes tested significantly lower than the 50th percentile ($p<.05$) on the sit-and-reach test. Girls were significantly below the 50th percentile ($p<.01$) in the mile run. When boys and girls were combined, scores for the mile run, skinfolds, and sit-ups were not significantly lower. These results suggest that children with type I diabetes mellitus may have reduced flexibility. Diabetic girls may have lower cardiorespiratory endurance. Limited mobility has been previously identified in the joints of the hands in individuals with diabetes, and may well affect other joints. Physical educators should be aware of the potential problem of reduced flexibility in students with diabetes and should be able to advise appropriate exercise programs to enhance joint mobility or any other aspect of health-related fitness.

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Pre-service Classroom Teachers' Concerns Regarding Early Field Experience in Elementary Physical Education. Debbie Howell, University of Central Arkansas; Madge Ashy, Southeastern Louisiana University.

The purpose of this study was to identify and describe the concerns of pre-service elementary education teachers (PEET) prior to their initial field work in elementary physical education (EPE). This research question is important because the majority of EPE is taught by elementary classroom teachers whose preparation was generally limited to one methods course in EPE. Subjects were 100 female PEET enrolled in EPE methods courses at two universities in two states. The researchers collected all data during scheduled class meetings. Standardized instructions and data collection forms were used. Subjects were asked to identify concerns regarding the upcoming field experience. Written reports were reduced by extracting and recording on separate index cards subjects' verbatim elements (concerns). The researchers worked independently extracting elements to establish inter-coder reliability. Discrepancies were then discussed, coding rules established and recording done until reliability reached .90. The extracted elements were then clustered into a category-subcategory system. The researchers sorted several samples of the same elements to establish category-subcategory reliability at .90. Frequencies, percentages and rank order of elements were calculated. The researchers extracted 204 elements from the 100 written reports. Each report contained from 1 to 5 elements (M=2.0, SD=.89). Subjects identified five categories of concerns: (1) teacher, (2) learner, (3) student-role, (4) task and (5) miscellaneous. Forty eight percent of subjects' concerns focused on the teacher category with the subcategories of inadequate preparation (15%), controlling students (7%) and physical ability (6%) cited most often. Twenty-three percent of subjects' concerns centered on the learner category with the fun (6%) and noncompliance subcategories cited most frequently. Twenty percent of subjects' concerns were recorded in the student-role category with the subcategories of cooperating teachers' expectations and student appreticeship each receiving 7%. The task and miscellaneous categories combined accounted for less than 10% of subjects' concerns. Findings from this study confirm that PEET lack adequate preparation for field work in EPE. Subjects expressed concern regarding their lack of appreticeship of observation in physical education. These findings have direct implications for teacher preparation and certification programs.

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BODY SEGMENT PARAMETERS AND ISOKINETIC TORQUE IN WOMEN.

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Success in many sports depends in part on the production of relatively large net joint torques. While a detailed biomechanical analysis is necessary to obtain net joint torque during sports performance, it has been common to study factors which underlie torque production by relating those factors to measurements of torque using an isokinetic device. For example, muscularity (as indicated by thigh circumference) is one of the positive correlates of knee extension torque. However, body segment parameters which may contribute to torque *reduction* have not been examined. Specifically, adiposity increases rotary inertia and the negative influence of rotary inertia is related to the magnitude of acceleration (such as that created by accelerating a segment from rest to a given velocity). Therefore, the purpose of this study was to examine the relationship between body segment parameters and isokinetic torque at four velocities of movement. Active female controls (n=15, age=26.7±5.5 yr) and dancers (n=14, age=25.1±6.8 yr) performed randomized knee extension bouts on a Cybex II at 0, 60, 180, and 300°.sec-1 (T0, T60, T180, T300). The respective peak torque was 152.0±44.0, 113.1±28.7, 70.9±19.8, and 47.7±13.6 N.m for the controls and 151.8±36.9, 126.0±28.0, 84.1±20.2, and 62.4±15.8 N.m for the dancers. For the controls and the dancers respectively, mass was 56.8±5.8 and 52.9±5.8 kg, height was 162.6±4.3 and 161.9±5.4 cm, thigh circumference (tc) was 56.2±3.2 and 54.4±3.3 cm, and calf skinfold (sc) was 14.6±4.6 and 12.6±5.2 mm. Correlations between sc and torque were negative, increased with velocity, and were non-significant at T0 ($p>.05$), and significant at T60 and T180 ($p<.05$) and T300 ($p<.01$). When T300 was predicted from muscularity (tc) and adiposity (cs) for the controls, R2=.53, $p<.03$, B(sc) =-.70, and B(tc) =.62. The analogous results for the dancers were R2=.66, $p<.01$, B(sc)=-.63, and B(tc)=.77. Thus, the increase in torque related to muscularity was approximately equal to the decrease in torque related to adiposity. These findings suggest that much of the production of torque on a Cybex II can be predicted from simple indices of muscularity (tc) and adiposity (sc). Further, these findings suggest that adiposity on the shank is a liability in torque production at slow (60-180) and moderate (300°.s-1) velocities in women. Because velocities of knee extension in many sports exceed 300°.s-1, it is possible that adiposity on the shank is a limiting factor for females.

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Afro-American Female Olympians as Role Models, Mentors and Leaders

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The purpose of this study is to assess Black female athletes in terms of their function as role models, mentors and leaders and their impact on future generations of sportswomen. The work examines the histories of 4 major Afro-American female Olympians (Alice Coachman, Wilma Rudolph, Nell Jackson and Whillye White), as well as a number of other Black female Olympians from Tennessee State University who competed in the 1948-68 Olympics. An overall picture of dramatic changes in social/racial patterns and appropriate female sport behavior during that era affords an especially enlightening opportunity to explore the interactions, impact and struggle of each sportwoman. Both shared and unique experiences of the 4 major Black Olympians in this work are compared and contrasted to those of 4 White Olympians from an earlier study. This social history utilizes both organizational and biographical data, as well as oral history.

Within the Afro-American community, sportswomen were able to participate in athletic competition without conflict about their endeavors falling outside their traditional role expectations. Femininity was not inconsistent with athletic success, and beauty was not integral to worthiness for emulation. Thus, while the Black female Olympians were personally concerned about femininity and beauty, the Black press was not. The White press employed the same sexist language, and provided coverage similar in amount to that afforded White female Olympians. However, the Black press focused on describing the athletic achievements of the Black female Olympians and provided coverage nearly equal to that given male Olympians.

The Afro-American female Olympians assisted in overcoming obstacles to athletic aspirations of women, Black or White, and contributed to significant break-throughs in racial barriers as well. Education was more important to these women than to their White counterparts, and all of them earned college degrees and worked in professional positions concerned with some aspect of sport, health, fitness or teaching. However, except at the local level, it was difficult for these Olympians to obtain within their own sports governing bodies coaching and leadership positions traditionally given to men. Even so, and despite the obstacles, they were able to achieve advantageous visibility which, in turn, facilitated access to increased leadership roles. Ultimately, the impact of these Afro-American female athletes was to further expand sport opportunities for the younger generation of all female athletes, and especially to inspire young professional Afro-American women to seek and acquire leadership roles in sport.

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AN EXAMINATION OF WEIGHT CONTROL BEHAVIORS OF ALABAMA ADOLESCENTS. Barry Hunt, Janis Beaird, and Steve Nagy, University of Alabama and Anthony Adcock, Troy State University.

The purpose of this study was to examine the weight control behaviors of Alabama adolescents, broken down according to race and sex. Data were obtained from the Alabama Adolescent Health Survey (AAHS) conducted in the fall of 1988. The AAHS is a modified version of the National Adolescent Student Health Survey and was administered to approximately 3800 eighth and tenth grade students across the State of Alabama. Item analysis was used to determine percentages and a chi square analysis was used to determine significant differences among selected subgroups.

Item analysis showed that of those surveyed, 61.5% perceived themselves as being at the right weight, while 21.3% perceived themselves as overweight. Students also reported the number of times during the past year that they modified their diet in order to lose weight. The responses indicate that 15.4% modified their diet once, 11.8% modified their diet twice, 4.9% modified their diet three times, and 9.4% modified their diets four or more times.

The questionnaire also examined the incidence of unhealthy methods to control weight. Results show that 8.9% of the total sample used diet pills during the previous year to control weight; 16.5% used vomiting as a weight control technique; 27.5% fasted; and 7.3% used laxatives as a weight control device. Differences between males and females and black and white respondents for the selected unhealthy weight control methods were also calculated. Significant findings at the .01 level include:

- Females were more likely than males to change their eating habits to control weight.
- Of those who changed their eating habits, females were more likely to use fasting as a weight control method.
- Males reported more use of laxatives as a method to control weight.
- Blacks were more likely to use laxatives to control weight than whites.
- Black respondents reported more use of vomiting as a weight control technique.

The researchers believe that the results of the study are cause for concern and have direct implications for improved instruction on nutrition and weight control methods in the schools.

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RELATIONSHIPS BETWEEN MEANINGS OF WORK AND MEANINGS OF LEISURE AMONG WHEELCHAIR ATHLETES. Sharon L. Hunt, University of Kentucky.

The purpose of this study was to examine related meanings of work and leisure as they were perceived by a random sample of 200 disabled adults ($N=124$) who were chosen from the National Wheelchair Basketball Association's team rosters. The theoretical base of research in the area of work-leisure relationships lies in the evaluation of the tenability of two rival hypotheses that attempt to describe the relationship between meanings of work and meanings of leisure. The compensatory hypothesis suggests that an individual will select leisure activities which compensate for deprivations experienced in the work setting. In contrast, the spillover hypothesis argues that meanings derived from the work environment will simply spill over into the leisure domain. In order to examine the meanings of work and leisure along a common scale of measurement, a semantic differential instrument, the Work Leisure Attitude Inventory (WLAI) (Hunt, 1976) was utilized. The WLAI consists of 11 evaluative bipolar adjective scales designed to rate 13 concepts identified by Havighurst (1957) as important aspects of the work and leisure domains. The results of the Pearson product-moment coefficients of correlation calculated for each of the 13 work-leisure concepts indicated that there was a significantly ($p \leq .05$) positive correlation between 3 of the 13 concepts. Results also suggested that this sample of wheelchair athletes perceived both their work and their leisure experiences as "meaningful", as evidenced by the finding that 12 of the 13 concept statements received positive ratings in both the work and leisure domains. Assuming that the perceptions of the individual are a valid data source in occupational and leisure planning, the information provided by this study could be utilized in developing strategies for the future realization of favorable work and leisure meanings on behalf of disabled persons.

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EDUCATORS AND ATHLETIC DIRECTORS AGREE ON MANAGEMENT COMPETENCIES. Sandra L. Hupp, Washington State University; Deb Endersbe, Washington State University.

It is important to know if those currently engaged in athletic administration, and those preparing students for such positions have the same views of the importance of various competencies deemed necessary for people in athletic director positions. The purpose of the study was to determine if graduate faculty in athletic administration and selected collegiate athletic directors rated the same management competencies similarly with regard to importance for the job. The subjects consisted of 52 educators and 88 directors of collegiate athletics from NCAA division II and III schools. The Administrative competencies in Physical Education and Athletics (Paris & Zeigler, 1983) was used to collect data on importance of 50 management competency statements. Subjects were asked to respond to each statement using a five point Likert scale ranging from essential (score=1) to non-essential (score=5). The statements are categorized into one of seven dimensions: Planner, Fiscal Officer, Communicator, Resource Developer, Educator, and Leader. Results indicated that educators and practitioners had the same view of importance on six of the seven competency dimensions. The six dimensions were Fiscal Officer, Communicator, Resource Developer, Educator, and Leader. Educators' and athletic directors' views were different on the Planner dimension. The educators considered this dimension as more important than athletic directors. It is important that educators agree with practitioners on the importance of job competencies as they are the ones preparing professionals for those jobs. Other studies should be conducted, including NCAA division I athletic directors, to determine if different views on these competencies exist between any of the NCAA athletic director groups and educators. Further research is needed to determine if these competencies viewed as essential and highly important for athletic directors are actually being covered in graduate courses.

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THE RELATIVE EFFECTS OF DAILY AND WEEKLY PHYSICAL EDUCATION ON CHILDRENS' FITNESS LEVELS. Arlene Ignico, Ball State University.

Several studies investigating health-related fitness levels of elementary school children have shown that American students are consistently below desirable fitness standards. Perhaps more importantly, several researchers have demonstrated that unfit and overweight children exhibit early signs of coronary heart disease, high cholesterol levels, and elevated blood pressure. In light of this evidence, several professional organizations have identified daily physical education as a primary objective in raising fitness standards. The purpose of this study was to compare fitness levels of children participating in a daily physical education (DPE) program (175 min/week) to children participating in a weekly physical education (WPE) program (40 min/week). The AAHPERD Physical Best test (excluding pull-ups) was administered to 218 children grades 1 through 5. A SAS 2 (school) X 2 (gender) X 5 (grade) MANOVA revealed that DPE participants were superior on all 4 test items across the 5 grades. Univariate main effect analyses indicated females were more flexible, males were faster on the mile walk/run, and females had more subcutaneous fat. Grade 1 scores at the WPE school for the mile walk/run were higher than grades 2 through 5 and, at both schools, grade 5 body fat scores were higher than grades 1 through 4. Comparison of the results to AAHPERD national norms generally showed the DPE participants above the 50th or 75th percentile and the WPE participants below the 50th or 25th percentile. Data suggest that DPE students received enough moderate to vigorous physical activity to achieve desirable fitness levels while WPE students did not.

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NIR IS NOT VALID FOR ESTIMATING BODY COMPOSITION IN COLLEGE FOOTBALL PLAYERS.

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Near-infrared spectrophotometry (NIR) has recently been introduced for assessing body composition. The purpose of this study was to test the validity of an NIR device (Futrex-5000, Futrex Inc., Gaithersburg, MD) for determining body composition in college football players. The NIR device was compared to a criterion method hydrostatic weighing (HW), and to three and seven site skinfold (SF) estimations in 91 Division I college football players. The NIR measurement was made in duplicate by placing the light wand on the anterior midline of the bicep, halfway between the antecubital fossa and the acromion process of the right arm as specified by the manufacturer. The optical density obtained was placed in the manufacturer's equation to predict percent fat. SF measurements were made in duplicate on the right side using Harpenden calipers at the following sites: chest, axilla, subscapula, triceps, supraillium, abdomen, and thigh. Jackson and Pollock seven and three site equations were used to predict body density. Body density was determined by HW, with residual volume determined in duplicate using oxygen dilution. All body densities were converted to percent fat using the Siri equation. Correlations between HW and other methods for all players ($N=91$) were as follows: NIR ($r=.75$), seven site SF ($r=.91$) and three site SF ($r=.89$). Mean values ± SE for percent fat were HW 13.9 ± 0.65, seven site SF 14.4 ± 0.58, three site SF 13.0 ± 0.54 and NIR 8.3 ± 0.66. Results from ANOVA demonstrated that NIR significantly ($p<.01$) underestimated team percent fat (relative error = 40%) as compared to HW (SEE = 4.12). In blacks ($N=52$) NIR percent fats varied significantly ($p<.01$) from HW (mean ± SE 13.0 ± 0.80 vs 5.66 ± 0.83, for HW vs NIR, respectively, $r=.76$; SEE = 3.76). Body fat was also underestimated in caucasian players ($N=39$) ($p<.01$, 15.1 ± 1.06 vs 11.8 ± 0.78 for HW and NIR, respectively, $r=.81$; SEE = 3.83). There were no significant differences ($p<.05$) between HW, three and seven site SF estimations in any subgroup or total team analysis. It was concluded that this NIR device was not valid in assessing body composition in college football players.

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BLOOD PRESSURE AND CHOLESTEROL RESULTS FROM A NATIONAL SCREENING STUDY.

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The purpose of the study was to examine the relationships among age, sex, race, blood pressures (SBP, DBP) and total serum cholesterol (TC). The data were gathered from a national health screening survey conducted by a hospital network. The sample included 257,465 subjects consisting of 98,865 males and 158,800 females. Demographic data were gathered from self-reports and SBP, DBP and TC were measured by participating hospitals. The mean and standard deviations on the measured variables were age=57±15 yr SBP=135±19 mmHg, DBP=80±11 mmHg and TC=225±46 mg/dl. High TC (>240) and high SBP (>160) or DBP (>96) were present in 35% and 39% of the sample. While significance due to sample size was present in sex and race comparisons for TC, SBP and DBP, the results were consistent with total sample patterns. However, age had a significant ($p<.001$) and meaningful relationship to TC and SBP. There was a linear increase in SBP across decades of life from 20-29 yr (m=121±14) to 80+ yr (m=147±21). Age and TC exhibited a curvilinear relationship with a steep rise in TC demonstrated from 20-29 yr (m=187±39) to 50-59 yr (m=232±43) but little change in later years. The percentage increases of subjects into the high TC level from 20-29 yr (9%) to 50-59 yr (40%) followed the same curvilinear pattern. These data suggest that large numbers of individuals possess an elevated risk of CVD due to high TC, SBP and DBP and that interventions such as exercise and dietary therapy are warranted.

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A COMPARISON BETWEEN THE PSYCHOLOGICAL PROFILES OF WHEELCHAIR ATHLETES, WHEELCHAIR NONATHLETES, AND ABLE-BODIED ATHLETES.

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The purpose of this investigation was to compare psychological profiles of wheelchair athletes, wheelchair nonathletes, and able-bodied athletes. The subjects consisted of wheelchair basketball athletes (n=110, mean age=30.6 years) and wheelchair non-athletes (n=41, mean age=27.5 years) from regional rehabilitation centers. Psychological profiles for subjects were developed using the Profile of Mood States (POMS). Individuals were identified by age, years of disability, type of disability, medication, sports participation prior to injury, employment, social activity, choice of leisure activity, and perceived personality change. Multiple t-test comparisons of the six subscales of the POMS revealed a significant difference ($p < .01$) between wheelchair athletes and wheelchair nonathletes on depression and vigor. Wheelchair athletes scored significantly lower on the depression scale and significantly higher on the vigor scale. The groups were similar on the scales of tension, anger, fatigue, and confusion. The data indicated that wheelchair athletes were significantly more vigorous and less depressed than wheelchair nonathletes. Both groups displayed psychological profiles similar to previously established profiles of able-bodied athletes.

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THE RELATIONSHIP OF BODY FAT DISTRIBUTION TO BLOOD LIPIDS IN ADULT MALES. J. Jakicic, J.E. Donnelly, S. Gunderson. Kearney State College, Kearney Nebraska, 68849

The distribution of body fat at various sites has been correlated to blood lipids as an indicator of coronary heart disease risk; however, the measurement sites which predict best have not been clearly defined. The purpose of this study was to investigate the relationship between body fat distribution and blood lipids in 235 adult males(age=36.86±8.2 years; %fat=24.5±6.8). Body composition was determined through hydrostatic weighing with residual volume determined in duplicate. Girth measurements were performed at the upper arm (UA=largest girth,right arm),forearm (FA=largest girth,right arm),abdomen above(AB=1 inch above umbilicus),umbilicus (UMB), hip(iliac crest),gluteus(GL=largest girth). Skinfolds were measured on the right side at the bicep (BI),tricep(TRI),inferior angle of scapula(SUB),thorax (THOR= midaxillary,nipple level), iliac crest(IC),umbilicus(UM),thigh(TH). Cholesterol(CH), CH/HDL ratio, and LDL were determined using the Friedewald equation. Data analysis was performed utilizing Pearson correlation coefficients. No significant relationship(r) was found to exist between the measurements or total body fat and CH. Significant r's were found to exist between CH/HDL and all sites, with the largest r existing between CH/HDL and AB(.45). Significant r's were found between LDL and all sites, with the largest r's existing with TRI(.34) and AB(.30). Correlations were performed between blood lipids and various anthropometric ratios (UMB/HIP, ABAB/GL, UMB/GL, HIP/GL, ABAB/HIP). No ratio was found to correlate significantly with CHOL, while AB/GL had the largest significant r with CH/HDL(.48) and LDL(.27). Subjects were divided into groups based upon %fat(A<25%,N=123; B≥25%,N=112). Analysis for group A indicated AB to have the greatest significant r with CH/HDL(.41) while also relating significantly with LDL(.23). AB for group B had the greatest significant r with CH/HDL(.29), while TRI had the greatest significant r with LDL(.27). AB/GL for group A had the greatest significant r with CH/HDL(.44) and LDL(.21), while ABAB/GL for group B had the greatest significant r with CH/HDL(.33) with no ratio correlating significantly with LDL. No measurement or ratio correlated significantly with CH for either group. The results of this study appear to indicate that AB and AB/GL have the best r with both CH/HDL and LDL in adult males regardless of total body fatness. These results indicate that the utility of the AB/GL ratio or AB may be the best indicator of blood lipid risk factors.

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THE MEDICAL, SOCIAL AND ECONOMIC IMPACT OF AIDS: IMPLICATIONS FOR THE HEALTH EDUCATOR.

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The AIDS epidemic has influenced our lives in many ways. This study examined the significant impact of this disease and implications for the health educator. Over 1000 survey instruments were distributed to AIDS patients through AIDS service centers and clinics. Information collected included a detailed history of the subject's medical and social needs since diagnosis as HIV positive. Through this 13 page survey the researchers were able to identify the source of the AIDS infection, progress and costs of the infection, personal fears caused by the infection and concerns regarding the social and economic impact of this disease. Forty-three percent (434) of the surveys were used for data analysis. Of these respondents, 65% were full-blown AIDS cases, 19% were from persons with pre-AIDS conditions and 16% were from persons who were asymptomatic but HIV infected. From a medical perspective, 30% of the subjects reported being unable to obtain various kinds of medical care including medications (especially AZT and aerosol pentamindine), dental care and laboratory tests. Forty-six percent of the subjects reported that they needed access to trials of experimental therapies, while 15% reported poorly met needs for outpatient hospital services and for hospice care. From a social perspective, 24% of the subjects reported poorly met needs for household help, with 21% asking for help for those persons taking care of them. Nineteen percent reported poorly met needs for counseling and a need for legal help, while 13% reported a poorly met need for spiritual or pastoral care. From an economic perspective, 83% of the subjects were employed at the time of diagnosis with a median income of $20,000. By the time of the survey only 23% were still employed with a median income of $6,000. Forty-seven percent of the subjects were using publicly-funded insurance such as Medicaid, Medicare or Veterans benefits, and 21% relied on indigent care. From these data it becomes quite clear that when working with the victims of AIDS the health educator should be sensitive to not only the medical aspects of the disease, but the social and economic influences as well.

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The Accuracy of Coaches' Estimates of Minimal Wrestling Weight.

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The purpose of this study was to compare estimations of minimal wrestling weight (MWW) from experienced high school wrestling coaches, anthropometric equations and underwater weighing. Eighty-two wrestlers ($\bar{X}$ age ± SD = 16.54 ± 1.05 yrs) volunteered to be assessed via anthropometry and underwater weighing with percent body fat calculated from body density (BD) using both the conversion constants of Lohman [percent body fat = ((5.03/BD) - 4.59) x 100] and Brozek [percent body fat = ((4.57/BD) - 4.142) x 100]. In addition, five head coaches, who had between 5 and 24 years of experience, were asked to estimate within 1 lb. the MWW for each of their athletes. The validity of four selected anthropometric equations and the coaches' estimates were compared to the actual MWW from underwater weighing by examining the constant error (CE), r, standard error of estimate (SEE) and total error (TE) values. The CE, r, SEE and TE values for the anthropometric estimates of MWW ranged from -2.69 to -0.42 kg, 0.88 to 0.97, 1.86 to 3.98 kg and 1.90 to 4.90 kg, respectively. The CE, r, SEE and TE values for estimates of MWW from the individual coaches ranged from -2.47 to 1.39 kg, 0.90 to 0.98, 1.59 to 3.38 kg and 1.99 to 3.66 kg, respectively. The results of the investigation indicated that the skinfold equation (EQ1) of Lohman provided the most accurate estimate of MWW (TE = 1.90 to 2.09 kg), however, when the coaches data were combined, their estimates of MWW (TE = 2.42 to 2.79 kg) were better than the predictions from three anthropometric equations (TE = 2.77 to 4.90 kg).

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THERMIC EFFECTS OF FOOD AND EXERCISE IN TRAINED AND UNTRAINED COLLEGE WOMEN.

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It has been reported that aerobic fitness may modify the thermic effect of a meal (TEM). In addition, exercise following a meal may enhance TEM beyond the simple additive effect of resting metabolic rate (RMR), TEM, and the energy cost of the exercise. The purpose of this study was to determine: 1. if TEM is related to aerobic fitness, and 2. if there is a synergistic effect of TEM and exercise in women who differ in aerobic fitness. Twenty-four women (Ss) were initially tested for $\dot{V}O_2$ max. The 6 middle Ss were eliminated leaving a high-fit (HF; $\dot{V}O_2$ max = 56.7 ml•kg^{-1}• min^{-1}) and low-fit (LF; 39.2 ml•kg^{-1}• min^{-1}) group. Ss were tested for RMR (12 hour post-absorptive), TEM (following a 1400 kcal meal), and energy expenditure during a 15 min cycle ergometer ride (at 70% $\dot{V}O_2$ max) in a fasting and post-prandial state, and body composition (densitometry). A two-way ANOVA revealed no significant group differences in TEM or RMR ($p > 0.05$). There was a metabolic increase of 33.2% due to TEM that did not differ between groups ($p > 0.05$). When RMR and TEM were held constant (ANCOVA) energy expenditure due to the addition of exercise was not different between groups ($p > 0.05$) Energy expenditure during exercise was greater in the HF group (31.4%) due to a higher absolute workload ($p < 0.01$). Furthermore, there was an insignificant correlation between LBM and RMR and LBM and TEM ($r = -0.17, -0.18$, respectively). However, %fat correlated significantly with RMR ($r = -0.48$), and TEM ($r = -0.49$), and fat mass with RMR ($r = -0.55$) and TEM ($r = -0.59$) ($p < 0.05$). These results indicate that moderately vigorous exercise does not potentiate TEM in HF or LF subjects. In addition, there is a moderate negative relationship between relative or absolute fat content and energy expenditure in the pre- or post-prandial state.

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EFFECTS OF AN EXERCISE PROGRAM ON LOWER EXTREMITY STRENGTH AMONG OLDER WOMEN.

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Loss of muscle strength of the lower extremities has been found to be a major factor in mobility problems among older adults. Therefore, the purpose of this study was to investigate the effects of a progressive strength exercise program on the strength and muscle endurance of the lower extremities among older women. The study utilized a pre-test, post-test control group design. Forty-six females ($\bar{X}$ age=68 years) volunteered to take part in this field research study. All subjects were ambulatory and able to give a verbal health-activity history. The progressive, community based exercise program was conducted 3 times/week; sessions lasted between 45-60 minutes. The attrition rate was only 8% (4 subjects); and exercise compliance was 87%. The LIDO isokinetic machine at 90 deg./sec. was used to measure strength and muscle endurance of the dorsi and plantar flexor muscles of the ankle, and the extensor and flexor muscles of the knee for both the dominant and non-dominant legs. Results indicated that both the exercise and control groups improved on all measures. Dorsi flexor (DF) and plantar flexor (PF) strength for the exercise groups had a mean ranged between +12-21% DF, and +42-48% PF, while scores for the control group ranged between +6-7% for DF, and +28-33% for PF. Dorsi and plantar flexor muscle endurance for the exercise groups had a mean range between +16-45% for DF, and +46-64% for PF, while scores for the control group ranged between +8-22% for DF, and +31-50% for the PF. Improvements for knee extension (KE) and knee flexion (KF) strength for the exercise groups had a mean range between +18-24% for KE, and +13-29% for KF, while scores for the control group ranged between +13-14% for KE, and +8-9% for KF. Knee extension and flexion muscle endurance for the exercise groups ranged between +21-27% for KE, and +27-35% for KF; while scores for the control group ranged between +16-17% for KE, and +19-25% for KF. Based upon the parameters of this study, the results indicated that the exercise groups improved more than the control group on all measures. Thus, it can be suggested that part of the improvement in strength and muscle endurance can be attributed to the community exercise program.

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INCREASING INDEPENDENT AEROBIC EXERCISE OF STUDENTS WITH MENTAL RETARDATION. Cindy Jones and Pamela Cress, University of Kansas.

One of the obstacles preventing students with mental retardation from achieving and maintaining cardiovascular fitness in their inability to exercise independently. Unless they can tell time, students with mental retardation are totally dependent upon others to tell them when and how long to exercise. This study was initiated to increase the independent exercise behavior of students with moderate and severe mental retardation by bringing the duration of aerobic exercise sessions under the control of a timer. A single subject changing criterion design, replicated across seven students, was used to demonstrate that the length of time the students exercised became dependent upon the amount of time set on a timer. Six students were taught to walk on a motorized treadmill, one student was taught to walk laps in a gym; all students were then taught to activate a preset timer and to continue exercising until the timer sounded. During the course of the 7-week study the exercise sessions were gradually lengthened. A token reinforcement system was used to consequate exercising for the entire exercise period.

Data were collected on unsupervised probe sessions during which the students exercised without cues or prompts from a trainer. A visual analysis of graphed data was used to compare the amount of time set on the timer with the actual time the students exercised. Five of the seven students learned to independently go to the exercise area, activate the timer, engage in aerobic exercise until the timer sounded, and stop the timer when the session ended. Teaching timer use appears to be a viable option for increasing the independent exercise behavior of students who have mental retardation.

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TASK STRUCTURES IN ELEMENTARY PHYSICAL EDUCATION CLASSES.

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The primary purpose of this study was to describe and analyze task structures in elementary physical education classes. In addition, student responses to tasks, relationships among tasks within and between lessons, accountability systems, and interrelationships among task structures were examined. Two elementary physical education specialists were observed for a total of 34 full classes. Systematic observation strategies were used to describe and systematically analyze what was going on in classes. Field notes were used to enrich the data. A detailed narrative account of classroom events along with quantitative measures were obtained for each lesson. Data supported the existence of two task structures operating in these classes, managerial and instructional, along with an informal social task system. Teachers directed task accomplishment through "established structures" or relied on current interactions. Within the managerial structure, student responses to tasks were observed as compliant, "slow to comply", or noncompliant. In general, students complied to managerial tasks and modifications of such tasks were not evident. Student responses to instructional tasks were either on stated tasks with success or little or no success, modifications in the desired direction, or off-task. Primarily, students stayed on the stated task whether they were successful or not. Task modifications seemed to be influenced by student skill level, previous experience and interest, instructional format, and social interactions. Students were also observed physically and verbally negotiating tasks. Relationships among tasks within lessons indicated these teachers used a pattern of informing, extending, and applying tasks. Refining tasks were minimal. Regarding relationships between lessons, both teachers reviewed skills from lesson to lesson. A less formal accountability system was evident in these classes as elementary children did not seem to be involved with the formal exchange of performance for grades. For these children, such things as teacher approval, peer acceptance, special awards and activities, and other social reinforcers seemed sufficient to gain the performance desired by the teacher. Managerial, instructional, and social task structures did not operate exclusively, but interacted with one another. Teachers established managerial routines to provide more time for instructional tasks. In addition, performance was exchanged for social reinforcers. Managerial and social task structures were used to facilitate instructional tasks.

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A COMPARATIVE ANALYSIS OF THE PEDAGOGICAL COGNITIONS OF EXPERT AND NOVICE BASKETBALL COACHES DURING PLANNING AND PRACTICE SESSIONS. D. Floyd Jones, West Virginia University.

The study determined pedagogical differences between expert and novice scholastic basketball coaches as they planned, conducted, and reviewed a 30-minute practice session on the "give and go" play. Very little is known about how expert coaches are different than novices during planning and practice sessions. The importance of this study is three fold. First, it is necessary to understand the nature of expertise in coaching so that novices can learn to model the behavior of more experienced coaches. Second, it is difficult to evaluate and improve coaching unless characteristics of good coaching are known. Third, there is much need to expand the available research on pedagogical methods in sport so that coaches, administrators, and teachers might improve the coaching profession. In the study, an expert basketball coach had 8 years coaching experience, winning record, two or more play-off titles, received outstanding coaching honors, developed own offensive and defensive system and conducted camps and clinics. A novice coach was in his first or second season. Coaches had 30 minutes to plan aloud and their verbalizations were audio-taped. Practice sessions were videotaped. After practice, coaches participated in a 30-minute stimulated recall by viewing five one-minute video segments of practice and answering structured questions. Planning protocols were analyzed by the Modified Coach Planning Coding System to record cue requests and planning decisions. A Goal Structure Model identified problem solving strategies embedded in the protocols. Stimulated recall protocols were analyzed to trace the coach's interactive decision tendencies. The Coaching Behavior Assessment System (CBAS) categorized verbal and nonverbal behavior during practice. The Mann-Whitney U method was used to test for differences. Quantitative planning results showed experts made significantly more decisions about the objectives of the practice sessions. Cognitive planning data revealed experts made more statements about goals, goal constraints and sub-goals, i.e. novices' planning protocols were more shallow, with limited argument development to support goal solutions. Both groups made the same number of inflight adjustments. However, experts were significantly more likely to continue their teaching routines and delay adjustments when practice did not go as planned. Overall results produced a profile that suggests experts possessed superior knowledge in their field.

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THE EFFECT OF INTERVAL-TYPE EXERCISE ON EXCESS POST-EXERCISE OXYGEN CONSUMPTION (EPOC) IN OBESE AND NORMAL-WEIGHT WOMEN.

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The purpose of this study was to determine if alternating periods of exercise at 30% and 90% of maximal oxygen consumption (VO_2 max) would result in a greater magnitude and duration of EPOC than would exercise of equal duration at 60% VO_2 max. Additionally, we investigated whether EPOC differed between obese (OB) and normal-weight (NW) women. Two groups (NW and OB) of five women each with the following characteristics (mean ± SD) were studied: age 21.8 ± 1.3 and 23.4 ± 5.6 years; body fat 20.0 ± 1.9 and 34.0 ± 3.2%; and VO_2 max 39.3 ± 3.4 and 26.8 ± 2.4 ml/kg/min. Each subject participated in two 36 minute treadmill exercise trials in one week. One trial required alternating 3 minute bouts at 30% and 90% VO_2 max (30/90) and the other trial used constant intensity of 60% VO_2 max . Metabolic measurements were made using standard open-circuit spirometry techniques before, during, and after exercise. Post-exercise measures were continued until VO_2 had returned to pre-exercise baseline. There was no difference in the resting VO_2 between the OB (229 ml/min) and the NW (215 ml/min) groups. There were also no differences in the total exercise energy expenditure between the two exercise trials (232 kcals - 30/90 vs. 235 kcals - 60%) or between the two groups (222 kcals - OB vs. 245 kcals - NW). After exercise VO_2 remained elevated above baseline longer in the 30/90 trial than the 60% trial and was elevated longer in the OB group after the 30/90 trial than the NW group. Oxygen consumption was significantly greater through the first 15 minutes following the 30/90 exercise compared to after the 60% exercise. The total magnitude of the EPOC was also significantly greater following the 30/90 trial (OB 18.1 kcals, NW 16.8 kcals) compared to the 60% trial (OB 8.4 kcals, NW 9.7 kcals). The exercise oxygen consumption/EPOC ratio was greater following the 30/90 trial (OB 8%, NW 6.8%) versus the 60% trial (OB 3.8%, NW 4%). These findings suggest that interval type training, which incorporates high intensity exercise, can significantly increase the magnitude and duration of EPOC compared to constant intensity exercise of equivalent energy cost. However, it should be noted that the duration of EPOC was one hour or less for both exercise trials. Body composition was only an influence after the 30/90 trial as OB subjects had a greater duration of EPOC than did NW subjects.

Supported by a grant from Ball State University.

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TRADITIONAL AND NON-TRADITIONAL PRESERVICE TEACHERS' INTERPRETATION OF AN INSTRUCTIONAL SITUATION IN PHYSICAL EDUCATION.

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This study analyzed the problem solving strategies of preservice education majors when presented a hypothetical instructional situation of physical education. In many states, elementary physical education classes are taught by nonspecialists. The classroom teacher often receives only one pertinent course in preservice preparation programs, which does not provide adequate training in the transitions pertaining to management routines from the classroom to gymnasium. Recently, education researchers (Shulman, 1988) maintain that teachers must demonstrate their ability to establish and identify appropriate management skills and related processes of teaching. Shulman's recommendation to the Carnegie Forum supports the existence of teacher assessment centers where teachers will be observed planning lessons, analyzing textbooks and plans, and observing and critiquing simulated classroom circumstances. One method of critiquing the teacher's ability to identify and structure solutions for management concerns is to present hypothetical scenarios of "real life" classroom situations. The present study examined how preservice traditional and nontraditional elementary education majors would solve a physical education instructional situation with problems including: facility limitation, uneven numbers of students for partner-related dance activity, misbehavior by students, and planning for a new and unfamiliar unit of instruction. Currently, enrollment in elementary education preservice programs has increased in the number of "nontraditional" students (i.e., older students returning to begin new careers). Therefore, a second purpose of this study was to assess differences in the way traditional and nontraditional preservice students approached this situation. Sixty females ($\underline{M}$ age = 21 years; "traditional") and 16 females ($\underline{M}$ age = 37 years; "nontraditional") participated in the study. Subjects were asked to respond to the instructional situation. Demographic information and length of time to finish the task were recorded. Data were analyzed using an inductive process with two independent observers identifying and classifying subjects' identification of the problems and solutions. An overall interrater reliability of .86 was obtained. Results revealed no differences in amount of time taken to read and respond to the situation (TR $\underline{M}$ = 8.27 min; NTR $\underline{M}$ = 8.06 min). The TR group identified an average of 2.8 of the total 6 problems presented in the situation, and the NTR group identified an average of 3.8 of the 6 problems. Taken together, these students only addressed half of the problems in this scenario. The major concern of both groups was management of student behavior with little emphasis given to planning for instruction. The NTR students expressed concern for planning more than the TR students. The solutions provided by both groups for strategies to resolve the problems were similar with emphasis on positive reinforcement and firm disciplinary control.

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PARALLELS BETWEEN THE WOMEN'S SPORT AND THE DISABLED SPORT MOVEMENTS.

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The development of women's sports has been well documented in the literature. A significant research effort has been focused specifically on women in sport and gender issues in general. In addition, research has been conducted on sport and disabled individuals. But no research to date has focused upon the parallels between women and disabled individuals. The purpose of this study was to identify those parallels. A thorough review of the literature on the history of sport for women and disabled individuals was conducted. The literature historically supports exclusion from sport for women and disabled individuals as a result of medical opinions of physical limitation. Currently, reflecting society as a whole, women and disabled individuals have gained the right to enter the sporting arena. Based on the results of the study, the following were found to be common factors to the women's sports movement and disabled sport movement: (a) federal legislation, (b) professional and sport organizations including the United States Olympic Committee, (c) Basketball/Boston Marathon, and, (d) a multitude of cultural and attitudinal similarities.

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An Exploration of Stress, Burnout and Coping in Dual-Role Teacher-Coaches. Betty C. Kelley and Diane L. Gill, University of North Carolina at Greensboro.

The purpose of this study was to examine stress, burnout and coping among dual-role teacher coaches using both questionnaire and interview research techniques. Participants were male and female head coaches from NCAA Division II (N=4) and III (N=6) colleges who also had responsibility for instruction within the physical education major curriculum. Burnout was assessed via the Human Services Survey which yields scores on emotional exhaustion, depersonalization, and personal accomplishment. The scale was modified to address the teaching only or coaching only aspects of the dual-role. Stress specific to the athletic environment was measured with the Degrees of Stress Scale developed by Hunt (1983) and with open-ended questions. Following survey completion, each coach took part in an in-depth structured interview. Results indicated that 9 of the 10 coaches demonstrated low levels of emotional exhaustion for teaching while 5 coaches showed moderate levels for coaching. Nine coaches scored low in depersonalization and all 10 had high levels of personal accomplishment. All but one coach reported that they had experienced high levels of burnout during their dual-role career, however the burnout was transitory. The single greatest stressor within the athletic environment was coaches "placing pressure on themselves to win". Both interview and survey data highlights time restraints and management as a particularly salient stressor for these coaches. They expressed not having enough time to devote to "both teaching and coaching", to "their family and social life", and to "themselves". Other primary stressors included: role strain, recruiting, and budget and facility hassles. Unanimously, the teacher-coaches were taught minimal, if any, coping strategies during their undergraduate preparation. However, over time these coaches have developed a wide range of skills including relaxation techniques, realistic goal-setting, use of their social support network, and physical exercise to reduce stress. Time management, organizational skills, stress management, and learning to leave the job at school were the coping strategies the majority of coaches wanted to learn. Interestingly, all but one coach planned to discontinue coaching before teaching and all 10 coaches believe that burnout among teacher-coaches at the Division II and III levels is an "increasingly serious" and "prevalent problem".

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THE EFFECT OF PHYSICAL ACTIVITY ON SELF ASSESSED LIFE SATISFACTION AND HEALTH STATUS IN ELDERLY: A 12 MONTH FOLLOW-UP.

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The purpose of this study was to examine long term changes in life satisfaction (LS) and health status (HS) of elderly as a result of adherence or non-adherence to a walking program. One hundred and forty-one men and women 60 years of age and older who had participated in a previous study agreed to take part in this 12 month follow-up study. During the original study (15 week walking program), subjects had been randomly selected into control, walk alone, and walking in pairs groups, and pre/post self assessments of LS and HS were obtained via a questionnaire. LS and HS were evaluated on a scale ranging from poor = 1 to excellent = 4. During the present study subjects were contacted to evaluate adherence to the walking program and collect current self assessments of LS and HS. Results demonstrated significant differences ($\underline{p} < .05$) between adherent and non-adherent subjects in each walking group for both LS and HS. Adherent subjects maintained a positive outlook on life and health whereas non-adherent subjects did not. Also it appeared as though group means for follow-up LS and HS differed significantly across grouping established during the original study (pairs, alone, and control, respectively). This finding did not agree with results acquired in the original study which demonstrated no significant difference between the walking groups. However, further investigation confirmed that the difference between the walking groups was a product of the proportion of adherent vs non-adherent subject per group. When the adherent subject portion of the walking groups was examined no significant difference existed between groups. It should be noted that the walking in pairs group elicited the largest rate of adherence vs the walking alone group (70% vs 36%, respectively). This signifies that pairing the elderly creates an environment conducive to adherence. In conclusion, adherent subjects' perceptions of LS and HS did not change over time but remained stable across time while non-adherent subject' perceptions of these dimensions decreased significantly. This provides support for the positive effect of physical activity on elderly.

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DESCRIPTIVE KINEMATIC AND KINETIC ANALYSIS OF RUGBY DROP KICKS.

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The purpose of this study was to describe the kinematics and kinetics involved in drop kicking. Two skilled subjects were analyzed. Body segmental parameters were generated by using Hanavan's model. Subjects were filmed using a Locam camera filming at 300 fps. A force platform sampling at 1000 Hz was used to gather ground reaction forces. Goal posts were placed 20 m from the force platform. Records were kept on the success or failure of the kick. Ten trials of each subject were recorded after a sufficient warm-up period was allowed. The processed film was digitized and stored. Data were smoothed using a low-pass digital filter with cutoffs ranging from 20-50 Hz. The corresponding segmental and joint parameters were gathered using laboratory software. Force platform data was gathered and selected variables were calculated. The outcome of the performance was highly related to the characteristics of the ball rebound. When the ball was dropped, the kicking leg had already initiated forward motion. With this onset of motion, it was difficult for the performer to change or adjust their kicking leg motion to compensate for the ball kinematics. When the ball contacted the ground, the mean horizontal distance of the toe from the center of the ball was 78.1 ± 18.2 cm. The mean vertical distance of the toe from the center of the ball was 1.0 ± 5.7 cm below the ball. The mean angle of the ball after rebounding from the floor was 29.90 ± 69.7 degrees. The mean horizontal distance of the knee behind the ball was 33.1 ± 7.6 cm. These variables illustrate the importance of both the angle of rebound of the ball after contacting the floor and the positioning of the leg in relation to the ball are to successful performance. At ball contact, the horizontal and vertical velocity of the foot was 17.93 ± 1.53 m/s and 5.9 m/s. The corresponding mean shank and thigh angles were 276.73 ± 9.37 degrees and 320.54 ± 5.69, respectively. Mean hip and knee joint angles at ball contact were 141.15 ± 9.73 degrees and 136.21 ± 10.35 degrees. In a typical trial, the velocity of the shank increased to 1857.1 d/s at ball contact. The thigh reached maximum velocity of 894.2 d/s at 26.6 ms before ball contact. The velocity of the thigh continued to decrease as the velocity of the shank increased. The kinetic variables across all trials were reasonably consistent. The largest variability was found in stance time (282.23 ± 60.67 ms) and time to maximum vertical force (70.88 ± 56.86 ms).

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The Climbing Patterns Of Four- And Six-Year-Old Children On Ladders With Differing Rung Spacings. Mary F. Kirk, Northern Kentucky University.

The purpose of this study was to investigate the ascending and descending climbing performances of preschool children on 3 ladders with rungs spaced 6, 9, and 12 inches apart. More specifically, the purpose was to: (a) identify body components in climbing patterns, (b) determine if developmental trends were evident in the climbing performance of preschool children, (c) determine if the distance rungs were spaced on ladders affected the efficiency level of the climbing components. In a pre-study, the following qualitative climbing components were identified and subsequently assessed in this study: leg action pattern, degree of extension of propulsive leg, lift leg position, hand placement, foot placement (area of the rung, part of the foot and accuracy), leg-arm coordination (temporal and spatial), extent of hand-arm reach, body position, and head position. Each of the components contained 2 to 4 possible levels of behaviors, identified from least to most efficient. In addition speed and height of climb were also evaluated. In a controlled gymnasium setting, forty 4- and 6-year-old children were independently videotaped simultaneously from the side and back views during 4 climbing trials on each of the 3 ladders. The tapes of each trial were later coded by trained observers who maintained at least 80% inter-rater reliability. Each component was independently evaluated based on the number of behaviors for each level that were demonstrated by subjects. The proportion of possible behaviors for each level was then analyzed by 27 separate factor analyses of varience and subsequent Fisher's lsd tests to locate significant differances. The independent variables were age, gender, ladder rung spacing and level of climbing component. Significant age and gender differences were found for most of the components, and for many of the components the distance between ladder rungs affected the efficiency of the performance of subjects. These results suggest the existence of developmental component sequences in ladder climbing patterns of children. The most mature level of performances for most components occurred on the 9 inch rung spaced ladder, and the least mature on the 6 inch rung spaced ladder, which has major implications for the design of playground and gymnasium climbing structures.

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STRENGTH AND FLEXIBILITY SYMMETRY IN THE LOWER EXTREMITY OF OSTEOARTHRITIC WOMEN.

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The purpose of this study was to examine the lower extremity characteristics of osteoarthritic women to determine the presence of symmetry. Lower extremity strength and flexibility measures were obtained on ten women (age=68.7, SD=4.6 yr.) who had documented incidence of osteoarthritis (OA) in the lower extremity. Seven subjects reported OA in one or both hips and 3 subjects reported a combination of hip and knee OA. Strength and flexibility measures were collected for both limbs and included: dorsiflexion (DF), plantarflexion (PF), knee flexion (KF)/extension (KE), hip flexion (HF)/extension (HE), hip abduction (HAB)/adduction (HAD), and hip internal (HIR)/external (HER) rotation. Strength was measured isometrically from standardized starting positions using an isokinetic dynamometer. Flexibility values were acquired using a hand goniometer and measured from standardized starting positions. The data collected on both limbs were arranged to assess symmetry between the limb most affected by OA (AL) and the limb which was least affected or had no documented OA (UL). Comparisons of AL and UL differences in strength indicated the AL to be weaker in the movements of DF (-3%), PF (-14%), KF (-26%), HF (-42%), HAB (-3%), and HAD (-10%). KF and HF differences were noted as being statistically significant ($p<.05$). Flexibility results did not present as clear a trend with lower AL values present in the movements of KF (-8%), HAB (-5%), and HER (-8%). The AL flexibility was greater for DF (+8%), PF (+3%), HAD (+2%), and HIR (+7%). HF in both limbs was similar (0.4% diff.). KF differences were noted as being statistically significant ($P<.05$). The results of this study identify sites of strength and flexibility asymmetry in OA subjects which could serve as indicators for increased attention in the rehabilitation process.

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A COMPARISON OF THE PHYSICAL FITNESS LEVELS OF ELEMENTARY SCHOOL LEARNING-DISABLED, GIFTED AND REGULAR EDUCATION STUDENTS.

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The purpose of this study was to determine if differences exist in the physical fitness levels of elementary school children of different academic classifications. The classifications, as predetermined by the Marinette School District, were: (1) Learning-Disabled, (2) Gifted, and (3) Regular Education. A total of 544 children in grades three through five were evaluated utilizing FITNESSGRAM, which included the following subtests: (1) One-Mile Run/Walk, (2) Sit-Ups, (3) Flexed-Arm Hang (girls)/Pull-Ups (boys), (4) Sit-and-Reach, and (5) Skinfold Measurements. Testing was conducted during the regular physical education classes by the researchers and the physical education instructors. The data was analyzed using the FITNESSGRAM program, as well as by an analysis of variance and three Post Hoc tests (Scheffé, Tukey A, Tukey B). Based upon the results of the analysis of variance and the subsequent Post Hoc Tests (utilizing the .05 level of significance), it was determined that significant differences did exist between the three populations. Significant differences were noted between the Gifted and Regular Education populations on all subtests except the Skinfold Measurements. Significant differences were noted between the Regular Education and Learning-Disabled populations on all subtests except the Skinfold Measurements. Significant differences were noted between the Gifted and Learning-Disabled girls on all subtests except Skinfold Measurements, and between the Gifted and Learning-Disabled boys on all subtests except Pull-Ups and Skinfold Measurements. Overall, the Gifted population performed better than the Regular Education and Learning-Disabled populations, and the Regular Education population performed better than the Learning-Disabled population. It was interesting to note that no significant differences were noted between any of the populations with regard to the Skinfold Measurements subtest utilized to determine body composition. An examination of the total population (all 544 students) indicated a need for improvement in the area of upper body muscular strength and endurance for both boys and girls, and a need for improvement in flexibility for the boys. One might conclude that academic success/lack of success, as well as the motivation/lack of motivation to perform well academically, may carry over into the physical education setting. The Learning-Disabled population should be closely examined to determine if the needs of those students are being met in the physical education setting, and what steps need to be taken to meet their needs.

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GENDER AND TRAINING EFFECTS ON GROWTH HORMONE AND PROLACTIN IN RESPONSE TO TREADMILL RUNNING.

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There is evidence that gender and training affect anterior pituitary hormone response to exercise, however, disparities exist among previous investigations concerning training effects on GH response. Moreover, males have been poorly investigated for prolactin dynamics associated with exercise warranting further investigation. The purpose of this study was to determine whether gender or training affected the exercise-induced change in plasma concentrations of growth hormone and prolactin. Twenty subjects, classified as male 10K runners, female 10K runners, male untrained, and female untrained, ran on a treadmill for 30 min at a constant 80% of their maximum heart rate. Maximum heart rate was determined from a previous graded exercise test to exhaustion. Blood samples were taken before (-30 and 0 min), during (15 min) and after (30 and recovery 30 min) treadmill exercise from an indwelling catheter in an antecubital vein. Data were analyzed with a gender by training ANOVA with repeated measures.

		30R	-30	0	15	30
GH	men	0.7(0.2)	4.1(1.9)	9.6(3.7)	12.8(3.5)	4.2(1.5)
	women	4.7(1.4)	6.6(1.2)	15.4(3.1)	11.6(2.7)	3.2(0.9)
PRL	men	5.2(1.2)	5.9(2.1)	5.9(1.9)	7.0(1.6)	10.9(3.9)
	women	9.4(2.1)	9.3(1.8)	10.1(2.2)	12.2(3.2)	10.9(3.9)

An increase ($p < 0.05$) occurred at 15 and 30 min for growth hormone, but not prolactin, regardless of gender or training. Rectal temperature rose significantly during exercise. It is interesting to note that beta-endorphin concentrations in these runners (published elsewhere) were not elevated and thus did not contribute to the rise in growth hormone. Thus, gender and training do not effect GH and PRL response to this exercise protocol. In addition, GH concentrations rise in response to running at 80% of max heart rate but PRL concentrations do not.

Funded by Killgore Research Center, WTSU, Canyon, TX.

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COLLABORATIVE ACTION RESEARCH AND A BEHAVIORAL COACHING INTERVENTION: A CASE STUDY

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In order for research on coaching to be beneficial to coaches, it is necessary to bridge the gap between research and practice and implement interventions to help coaches enhance their coaching effectiveness. Collaborative action research is one method to bring together the research and practitioner. The present study combined the use of collaborative action research with systematic observation to initiate a behavioral intervention with a collegiate soccer coach during outdoor off-season practice sessions. Two trained observers recorded each coaching behavior with the Coaching Behavior Assessment System (CBAS) (Smith et al., 1977). Interrater reliability for the catagories of interest, positive reinforcement, mistake contingent encouragement, and technical instruction, was 84.39%. Upon seeing the CBAS results after the first observation, the coach decided that technical instruction was the most appropriate area in which to implement a four week intervention. The intervention for increasing the use of technical instruction included: 1) creating an awareness of the coach's use of technical instruction, 2) goal setting objectives for coach behavior, and 3) strategy identification and implementation for use with high expectancy athletes. Hence, a second purpose of the present study was to examine differential coach behaviors towards high and low expectancy athletes. The coach was observed once a week for the next three weeks. Results indicated that the largest increase in technical instruction occurred between the first and second weeks with a slight decline during the next two weeks. Although substantial quantitative changes were not observed, interview data suggested that the intervention benefitted the coach, especially in creating a greater awareness of coaching behaviors. Further analyses revealed differential coaching behaviors towards high and low expectancy athletes with low expectancy athletes generally receiving less technical instruction and more positive reinforcement and mistake contingent encouragement.

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VIDEO GAME EXPERIENCE: A POSSIBLE SOCIOCULTURAL EXPLANATION FOR COINCIDENCE ANTICIPATION DIFFERENCES.

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The purpose of this study was to investigate the relationships of age, sex, video game experience and coincidence anticipation (CA) ability for 7 to 9 year old children. The subjects were 105 (54 female, 51 male) children enrolled in a public school in the midwest. Children and their parents both provided information concerning the amount of video game experience and competitive open sport experience. Video game experience was categorized as no experience (NE), moderately experienced (ME, played less than once a week), and highly experienced (HE, played more than once a week). Each subject performed 36 trials of the Bassin Timer Task with control for equal numbers and random assignment of: (a) light approaching form the left and right sides, and (b) speeds of 2, 3, and 4 mph. Absolute error (AE), constant error (CE), and variable error (VE) were calculated. Computer experience across the ages was similar for both males and females for all levels of experience. However, when open sport experience was considered the percentages revealed that males with open sport experience had more computer experience than the other groups. The Sex x Experience x Age analyses for CE identified no significant differences for main or interaction effects. The Sex x Experience x Age analyses for AE revealed: (a) males were significantly ($p=.024$) more accurate than females, and (b) HE subjects were significantly more accurate than ME subjects ($p=.054$) and NE subjects ($p=.004$). The Sex x Experience x Age analyses for VE indicated that HE individuals were significantly ($p=.002$) more consistent than NE individuals. The Sex x Experience planned comparisons revealed that: (a) HE males were significantly ($p=.026$) more accurate than NE males, and (b) HE males were significantly ($p=.011$) more consistent than NE males. The Age x Experience planned comparisons revealed that: (a) HE 9 yr olds were significantly more consistent ($p=.049$) and accurate ($p=.040$) than NE 9 yr olds, and (b) the trend was similar but not significant for 8 yr olds. These results suggest that video game experience is a possible sociocultural explanation for differences in CA ability and should be included as a variable in future investigations.

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EFFECTS OF A HAMSTRING ECCENTRIC EXERCISE PROGRAM ON THE CONCENTRIC HAMSTRING/QUADRICEP TORQUE RATIO.

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The hamstring and quadricep peak torque ratio values are essential in evaluating strength, training and rehabilitation. However, exercise programs may intentionally or unintentionally strengthen one muscle group more than the other thereby affecting the ratio. The purpose of this study was to examine the effects of an isokinetic, eccentric hamstring exercise program on the isokinetic, concentric hamstring/quadricep torque ratio (H/Q). Twenty two healthy subjects were trained and tested on the Biodex isokinetic system. Two weeks prior to the beginning of the training program, the subjects' concentric H/Q strength baseline was established. Concentric testing was performed at 60, 240 and 450°/s. The eccentric strength was tested one week later at ω=60°/s. The training program was carried out three times per week for four weeks, and consisted of a stretching and biking warm-up and cool-down, and a 6x3 repetition of eccentric hamstring exercises at 60°/s. Throughout the training program, subjects had visual feedback on the computerized torque curve they generated. An 80% maximum peak torque was set as a goal for all 18 repetitions. The value for maximum torque was the highest reached by participants prior to the day of training. Two days after completing the training, hamstring strength was measured in the eccentric mode, and five days later the concentric H/Q ratio was remeasured. The average eccentric hamstring torque increased significantly from 84.8 to 109.5 ft.lb. ($t=3.03$, $p=0.004$). The total work (sum of work in 16 repetitions) increased from 582.2 to 799.3 ft.lb. ($t=3.15$, $p=0.003$). The concentric H/Q ratio changed from 57 to 61%, 75 to 74%, and 79 to 78%, at 60, 240 and 450°/s, respectively. No significant change was found in the H/Q ratio at 60°/s, nor for the change in H/Q ratio at higher speeds. It was concluded that 1) there was significant improvement in eccentric hamstring strength; and 2) the isokinetic, concentric H/Q torque ratio was not increased by eccentric exercises only. Therefore, exercising the hamstrings in their gait-specific mode of action (eccentric) did not show gains in standard isokinetic, concentric evaluation parameters. Function and exercise-specific assessments may be necessary components in evaluating strength.

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THE FIRST STEP IN A COLLABORATIVE EFFORT BETWEEN UNIVERSITY AND CLASSROOM TEACHERS DURING A PRESERVICE ELEMENTARY PHYSICAL EDUCATION PROGRAM. Karen A. Kurz-McPherson, West Virginia University and F. Nell Faucette, San Diego State University.

This study examined the effects of university elementary physical education specialists and elementary classroom teachers in a collaborative effort to provide preservice physical education students more effective feedback on practicum teaching experiences. Twenty classroom teachers assisted two university faculty members in the observation of 40 preservice physical education teachers during a five week on-site practicum. Classroom teachers were trained in the use of a checklist created by the university faculty which focused on student teacher's use of feedback to children, presentation skills, supervision patterns, and structure of the children's opportunities to be actively engaged at appropriate levels of difficulty. The classroom teachers were encouraged to make additional written comments to the pre-service teachers. The study focused on the classroom teachers' willingness to support the efforts of the university faculty by observing and providing specific written feedback to undergraduate physical education majors. In this study, the classroom teachers consistently observed and completed the checklist. Additionally, sixty percent of the teachers regularly provided feedback to the students through written comments on the checklists. Content analysis of the 386 written comments, indicated that 248 (64%) went beyond the topics in the checklists indicating a willingness to put extra effort into providing additional feedback. The areas most frequently discussed by the classroom teacher were lesson organization and behavior management (48%). At the conclusion of the practicum, six teachers were interviewed to determine their feelings about the experience and to gain insights on improvements that could be made to the collaborative process. A concern of the classroom teachers was their inadequate knowledge about physical education, thus the collaborative effort was both appreciated and helpful to them. Additionally, the classroom teacher felt they were of assistance to the university faculty and pre-service teacher by collaborating in the teacher education process.

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DESCRIPTIVE ANALYSIS OF STUDENT ALT-PE AND TEACHER BEHAVIORS IN COLLEGE AEROBIC DANCE CLASSES.

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Aerobic dance has become a popular offering in college and secondary school physical education curricula, and the examination of what characterizes effective instruction would certainly seem worthwhile. However, very little pedagogical research has been completed in this area. Descriptive studies are needed to provide a databased starting point to pursue further correlational or experimental research. Thus, the purpose of this study is to analyze teaching behaviors and student ALT-PE in college aerobic dance classes. Subjects were eight aerobic dance instructors, four each at two universities. Each teacher was videotaped for six classes during the 1989 spring semester. Teacher behaviors were coded into twelve major behavior categories with a modified Arizona State University Observation Instrument using interval recording procedures. When appropriate, the specifically defined categories were subdivided to record if the behavior was specific or general and whether it was directed to an individual or the class. A group time sample of student ALT-PE was completed every minute. Interobserver agreement checks exceeded the 85% agreement criterion needed to ensure the accuracy of the data. A total of 13,340 intervals of teacher behavior were coded in the 48 classes. Of all intervals, 78.83% were coded as specific while 4.12% were general. 81.33% of the intervals were directed to the group while 1.62% of the intervals were to individuals. The categories of silence (13.95%) and uncodable (3.1%) accounted for the remaining intervals. The instruction category accounted for the largest percentage of intervals (73.85%), subdivided into specific group instruction (73.39%) and specific individual instruction (0.46%). The group time samples indicated that 86.94% of the observed students were engaged in ALT-PE. Results clearly indicate that specific group instruction was the overwhelmingly dominant verbal behavior of the subjects. Since the teacher was not always in view, a modeling category was not included in this study; nevertheless, it should be noted that this nonverbal behavior was almost continuous while subjects were visible on the videotapes. Very little individual interaction, low rates of management, and high percentages of ALT-PE also characterize the classes in this study. Further research is needed to begin to understand what constitutes effective teaching in the aerobic dance environment.

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THE INFLUENCE OF ATTITUDES TOWARD DRUGS ON THE RELATIONSHIP BETWEEN SELF-ESTEEM AND DRUG USE.

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There has been a proliferation of research examining the association between drug use and self-esteem (SE) among adeolscents. Claims from this literature have suggested an inverse correlation between SE and drug use. The rationale is that SE contributes to drug use in two ways: adolescents with low SE find that drug use makes them feel more competent and drugs can offer an escape from emotional pain. The purported relationship between SE and drug use has been challenged. First, studies have indicated that drug use is not exclusively identified with "problem" individuals. Second, there are methodological problems inherent in the SE/drug use literature such as lack of uniformity, reliability, and validity of measurement for drug use and SE. Finally, studies have suggested that the connection between SE and drug use is determined by many complex factors. One variable that may mediate the relationship is attitude toward drug use. Sex research on adolescents has revealed that the link between SE and sexual behavior is directly influenced by a person's attitude about the "appropriateness" of the behavior: the correlation between sexual experience and SE was negative among adolescents who believed that premarital sex is wrong; it was positive among those who felt that premarital sex is acceptable. This study examined the influence of attitudes toward drugs and how that affects the association between SE and drug use. The following hypotheses were advanced: 1) there will be no relationship (or a positive one) between SE and drug use among adolescents who have a positive attitude toward drugs; 2) there will be a negative relationship between SE and drug use amond adolescents who have a negative attitude toward drugs. Data were gathered spring 1989 from 1,276 students in rural high schools in northwest Ohio. A series of one way ANOVAs confirms that there was no direct association between SE and use of alcohol, marijuana, or cocaine. Multiple ANOVAs with drug attitudes used as a covariate indicate that attitudes are an important mediating variable in the relationship between SE and drug use such that subjects with high SE were more likely to act (relative to drug use) in accordance with their values (positive or negative attitudes toward drug use). Implications for educational programming and research will be discussed.

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SELF-EFFICACY EXERCISE EXPECTATIONS IN AN ELDERLY POPULATION OF EXERCISERS AND NON-EXERCISERS.

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The purpose of this study was to assess the self-efficacy exercise expectations of a sample of elderly exercisers and non-exercisers. A secondary purpose was to develop a valid, reliable, and age specific survey instrument to measure self-efficacy exercise expectations in an elderly population. An open-ended elicitation survey based on the self-efficacy model was distributed to 40 exercisers and 40 nonexercisers 65 years of age and older. A 48-item closed-format final instrument was developed from the elicited responses and sent to 6 authorities in exercise and self-efficacy for validation. Also, on the final instrument factor analysis was conducted to establish construct validity. Stability reliability was established for the instrument utilizing 32 elderly subjects, the Pearson correlations for the subscales were .53 to .75, and internal consistency scores (Cronbach alpha) for the subscales were .86 to .95. Reading level of the instrument, using the SMOG formula, was 8th grade (± 1.5).

A final sample of 114 exercisers (52 males and 62 females) and 103 nonexercisers (29 males and 74 females) responded to the self-efficacy exercise questionnaire. Responses were analyzed using analysis of variance, t-tests, and stepwise multiple regression. Scores on all three subscales were significantly higher for exercisers than for nonexercisers; efficacy expectation (M = 49.3, SD = 12.8 versus M = 27.2, SD = 19.6), outcome expectation (M = 63.3, SD = 11.0 versus M = 50.7, SD = 15.7) and value of outcome expectation (M = 56.5, SD = 6.8 versus M = 51.0, SD = 12.1). A stepwise multiple regression analysis on the components of the self-efficacy model explained 41% of the variance in exercise behavior (efficacy expectation explained 34% of the variance). Further analyses will be reported based on sex, age, education level, and level of income of respondents.

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TEACHERS' JUDGMENTS IN SECONDARY SCHOOL PHYSICAL EDUCATION CURRICULUM DECISION-MAKING.

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Shavelson and Stern's (1981) Conceptual Model of Teachers' Judgments and Decisions includes such categories as Information About Students, Nature of the Instructional Task, Classroom and School Environment, and Teacher Characteristics. The purpose of this study was to identify teachers' judgment elements in the selection and sequencing of curricular content in high school physical education. Six high school physical education teachers from urban, suburban, and rural high schools in the midwest were selected for the study; one male and one female teacher from each school participated in the study. The years of teaching experience ranged from 17 to 31 years. Each teacher was interviewed for 60 minutes using a standardized, open-ended interview format. Interview questions were related to the inclusion and exclusion of curricular content and content sequencing. The interviews were audio-taped and transcribed. The data were analyzed using inductive analysis and the constant comparative analytic method. Eleven themes emerged as elements in the inclusion of curricular content: 1) Student Interest (Gender-Differentiated); 2) Participation Patterns (Prestige of the Varsity Sport, Past Student Participation, Community Participation); 3) Teachers' Personal Enjoyment, Participation, and Expertise; 4) Nature of the Activity; 5) Weather; 6) Availability of Facilities; 7) Class Size; 8) Goal Achievement; 9) Liability; 10) Equipment; and 11) Trends in Physical Education and Sport Media. Student interest was a major factor in curriculum decision-making. The three themes related to the exclusion of curricular content were Liability and Risk, Facilities and Equipment, and Teacher Expertise and Interest. The data analysis revealed that judgment elements receive differentiated emphasis in the selection of specific curriculum units. The study also examined horizontal and vertical sequencing of curricular content. Horizontal sequencing of content was based on Weather, Facilities, and Participation Patterns (Varsity Sport Seasons), whereas vertical sequencing was based on Student Maturation (Physical and Social), Goal Achievement, and Participation Patterns (Past Student Participation). The judgment elements of physical education curriculum decision-making, in this study, correspond to selected categories proposed by Goodlad (1979), Shavelson and Stern (1981), and Grohosky (1984).

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PHYSICAL FITNESS LEVELS OF MAINE CHILDREN. Holly R. Lehnhard, University of Maine; Robert A. Lehnhard, University of Maine; Scott F. Marion, University of Maine; Donna M. Beckwith, University of Maine.

The primary purpose of this study was to assess the physical fitness levels of Maine public school children and provide a model for a statewide assessment program. A secondary purpose of this study was to provide inservice training to physical and health educators regarding the use of health related fitness assessment. This comprehensive effort assessed the physical fitness levels of 30,000 children (approximately 15% of Maine public school students), ages 5-17. An initial letter soliciting participants was sent to all (657) practicing physical educators. Of this group, 215 indicated that they would be willing to participate in the inservice training and subsequent assessment of their students. Eight, five-hour inservice training sessions were held in three geographical locations. These sessions provided both the theoretical background and practical application of the American Alliance of Health, Physical Education, Recreation and Dance Health Related Fitness Test (AAHPERD-HRFT). After successful completion of the inservice training, the educators evaluated their students in four health related physical fitness parameters: 1) cardiorespiratory function as measured by the one mile run (minutes:seconds), 2) low back and posterior thigh flexibility (cm), 3) body composition measured by the tricep and subscapula skinfold (cm), and 4) abdominal muscular strength-endurance (number performed correctly). Results suggest a remarkably low fitness profile across all ages when compared to the AAHPERD-HRFT norms. The only test item which consistently ranked above the 50th percentile was flexibility. Maine boys' and girls' average percentile ranking was 50 and 64, respectively. Maine boys' average percentile for abdominal strength and endurance was 48, and girls' was 50. Average percentile ranking for the one mile run walk were 26 and 35 for boys and girls, respectively. Body composition (sum of tricep and subscapula) demonstrated the same trend, although percentiles were even lower (average percentile ranking was 15 for boys, and 20 for girls). The results of this project would indicate not enough is being done in our children's education to promote healthy behaviors. This investigation suggests that a large scale, comprehensive effort to assess physical fitness levels can be implemented.

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THE PHYSIOLOGICAL RESPONSES TO AN AEROBIC DANCE ROUTINE USING HAND-HELD WEIGHTS. C.A. Leonard, W.R. Thompson, F.J. Servedio, T. Boone, J.T. Johnson. Laboratory of Applied Physiology, School of Human Performance and Recreation, The University of Southern Mississippi, Hattiesburg, Mississippi 39406-5142.

The purpose of this investigation was to determine the physiological responses to an aerobic dance routine using various weights (0, 1, 3, and 5 pound weights) held in each hand. The same 30-minute routine was performed by 18 female subjects aged 19 to 28 years (23.67 ± 2.93) with aerobic dance experience. After receiving instruction to the routine each subject followed a video tape to insure replication. Each subject acted as her own control. A maximal graded exercise treadmill test preceded the four randomly assigned treatments.

	weights (pounds)			
variable	0	1	3	5
HR (bpm)	166±16	170±14	175±15	180±10
%HR max	88±8	90±7	93±7	95±4
VO2 (ml/kg/min)	28±5	28±4	30±6	32±4
%VO2 max	69±14	72±12	76±16	80±10
LA (mg/dl)	29±12	31±13	42±16	45±14
%LA max	39±17	41±17	57±23	60±18
SBP (mmHg)	150±12	150±14	155±14	152±11
DBP (mmHg)	74±5	74±6	70±8	75±6
MAP (mmHg)	99±4	99±4	98±8	101±4

Heart rate (HR) and %HR max increased significantly ($p<0.05$) across all weights. Oxygen consumption (VO_2) and %VO_2 max increased ($p<0.05$) between 0 and 3, 0 and 5, 1 and 3, 1 and 5, and 3 and 5 pounds. Blood lactate (LA) and %LA max increased ($p<0.05$) in 3 and 5 over 0 and 1 pounds. Systolic blood pressure (SBP) and mean arterial pressure (MAP) did not change between treatments. Diastolic blood pressure (DBP) was different ($p<0.05$) in 3 pounds. These results indicate a progressive increase in hand-held weights can augment the physiologic stress to the same aerobic dance routine.

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PSYCHOLOGICAL AND PERFORMANCE ANTECEDENTS OF THE MOST VALUABLE PLAYER CONSTRUCT IN COLLEGE BASKETBALL PLAYERS. James E. Lidstone, South Dakota State University.

The purpose of this study was to determine psychological and performance criteria used by coaches to determine a player's value and worth to the team. 54 male and 53 female basketball players completed the Work and Family Orientation Questionnaire and Gordon's Survey of Interpersonal Values. Additionally, pertinent offensive and defensive game statistics were obtained over an entire basketball season. Following the season, coaches were asked to rank their players from "most valuable" to "least valuable." Data were analyzed using stepwise multiple regression procedures. Separate analyses were conducted for males, females, and the combined sample.

1. For males, points, assists, and rebounds per game, field goals attempted, work, recognition, field goals made, percent of games played, and support accounted for 86.9% of the variability in the analysis (F=30.12, df=9,41, $p < .01$).

2. For females, points and assists per game, mastery, perosnal unconcern, percent of games played, and field goals made explained 74.9% of the MVP construct (F=18.42, df=6,37, $p < .01$).

3. For all subjects, points and assists per game, percent of games played, mastery, field goals attempted, rebounds per game, support, recognition, free throws attempted, and personal unconcern were significant predictors of MVP (R^2=.787, F=31.01, df=10,84, $p < .01$).

It was concluded that coaches' determinations of players' worth is largely based upon performance criteria although psychological constructs such as the desire to work hard (work), preference for challenging tasks (mastery), indifference about how others perceive your accomplishments (personal unconcern), and the need for support and recognition were important considerations as well.

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THE RELATIONSHIP BETWEEN PHYSICAL SELF-EFFICACY AND COMPETITIVE STATE ANXIETY IN BEGINNING MODERN DANCE STUDENTS.

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Although dance and sport are activities which share many similiarities in terms of physical performance, they differ greatly in their purpose and intent. This study investigated the relationship between two psychological factors often studied in sport, physical self-efficacy and competitive state anxiety, in beginning modern dance students. Twenty-four subjects, 15 females and 9 males, enrolled in a beginning modern dance class at The Pennsylvania State University participated in the study. One week prior to a public performance, all subjects completed the Physical Self-Efficacy Scale (Ryckman, Robbins, Thorton & Cantrell, 1982) and the Competitive State Anxiety Inventory-2 (Martens, Burton, Vealy, Bump & Smith, 1983). Fifteen minutes prior to the performance, all subjects again completed the Competitive State Anxiety Inventory-2 (CSAI-2). One-way analyses of variance for the CSAI-2 subscales over time (Tests 1 and 2) showed no significant changes in cognitive anxiety, however somatic anxiety significantly increased, while self-confidence significantly decreased. Stepwise multiple regression analyses were employed in order to determine if physical self-efficacy was a predictor of competitive state anxiety. Results revealed that the Perceived Physical Ability (PPA) component of Physical Self-Efficacy (PSE) was a significant predictor of somatic anxiety, Test 2, accounting for 15% of the variance in these measures; the Physical Self-Presentation Confidence (PSPC) component of the PSE was a significant predictor of self-confidence, Test 1, accounting for 18% of the variance in these measures; and the PSPC was a significant predictor of self-confidence, Test 2, accounting for 31% of the variance in these measures. Results are discussed in terms of the similarities and differences between dance and athletics, as ascertained by their respective performances on self-efficacy and competitive state anxiety measures.

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TEACHER VS PEER MODELS: A REPLICATION OF THE LANDERS AND LANDERS (1973) STUDY.

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This study attempted to replicate and extend the Landers and Landers (1973) study which examined the influence of skilled and unskilled teacher and peer models on motor performance. Sixth grade females (N=100) were assigned to one of four treatment groups in which they observed either a skilled teacher, an unskilled teacher, a skilled peer, or an unskilled peer perform on the Bachman ladder task, or were assigned to a no model condition. The unfamiliar models were introduced on videotape as either a teacher or a peer from another school. Subjects were then videotaped performing 30 trials of the task. In addition, subjects were asked to complete self-efficacy questionnaires on three occasions: a) immediately after verbal instructions, b) after watching the model perform, and c) after they performed. Performance scores were recorded by the number of consecutive rungs touched. Form scores were calculated from the videotapes by two independent judges. Multivariate analysis of performance and form scores yielded a significant main effect for skill. Examination of univariate tests showed that those who saw a skilled model scored higher in both performance and form than those seeing an unskilled model. A priori contrasts comparing the control group to all other groups revealed that the control group was significantly lower in form and performance in all trial blocks. In contrast to the study by Landers and Landers (1973), no Model x Skill interactions were found. This difference is explained in terms of using unfamiliar models rather than the subjects' own teacher or peer. While there was no difference between groups in confidence prior to watching the models, examination of the second and third self-efficacy questionnaires using a 2 x 2 x 2 (Model x Skill x Trial) MANOVA with repeated measures on the last factor revealed a skill main effect and also a Skill x Trial interaction. Those viewing a skilled model were more confident both after watching the model and after performing the task. However, after performing, a significant decrease in efficacy was shown by the skilled groups only. This suggests that although the skilled groups found the task to be more difficult than they had first expected, their efficacy for future performance remained higher than for those in the unskilled groups.

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EFFECTS OF A PERSONAL FITNESS CURRICULUM ON THE PERCEIVED FREEDOM OF LEISURE OF NINTH GRADE STUDENTS.

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In 1986 the American Association for Leisure and Recreation responded to the national report entitled "A Nation At Risk: The Imperative for Educational Reform" with a position statement on "Leisure Education and the Public Schools" (Meier, Carpenter, Foret, Sholtis-Jones, Barnett-Morris & Wilson, 1986). Reaffirmed was the importance and value of education for leisure in schools. While past projects, e.g., Leisure Education Advancement Project (LEAP) and Lighted Schoolhouse/Community Education, promoted leisure education in the schools, the impact had limited success. Suggested was need for a "synergistic effort to maximize a cooperative, coordinated program of involvement for leisure education", implying that leisure concepts, e.g. freedom, enjoyment, be infused into public school curricula. Potential for this proposed integration was examined as part of a larger study (Monroe, 1989) introducing a personal health-related fitness curriculum to a Midwestern junior high school. A treatment (N=142) and control (N=71) group of ninth graders were administered three instruments as pre/post-tests measuring attitude towards physical activity, knowledge of personal fitness concepts, and improvement of fitness. A fourth measure, Witt and Ellis's (1987) Perceived Freedom in Leisure scales, was administered in pre/post tests to the treatment group. The treatment group participated in a nine week personal health-related fitness program (Williams, Harageones, Johnson & Smith, 1986). The control group remained in a traditional physical education program using skill development and activity. A multivariate analysis of variance (MANOVA) found significant differences between the groups following the program. The treatment group developed more positive attitudes towards physical activity, increased personal knowledge about personal fitness, and significantly improved their health-related fitness. Further, there was a statistically significant difference between the pre and post test scores on the Perceived Freedom in Leisure Scales ($t_{140} = 6.87$, $p = .000$) for the treatment group. Reliability coefficients for the scale items were .92 on the pre-test and .93 on the post-test. Brightbill (1960), thirty years ago, was optimistic about educating for leisure, but felt "the school will have to drop its traditional policy of isolating leisure education on the island of extracurricular activities and bring it into the mainland of the school curriculum itself". The study results indicate potential for the educating for leisure through conscious integration of leisure concepts in the physical education curriculum.

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EFFECTS OF A PERSONAL FITNESS CURRICULUM ON ATTITUDINAL, COGNITIVE AND PHYSICAL FITNESS MEASURES OF NINTH GRADE STUDENTS.

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The purpose of this study was to investigate the effects of a personal health-related fitness course on (a) attitudes towards physical activity, (b) knowledge of fitness concepts, and (c) the physical condition of ninth grade students. A further purpose was to attempt replication of a pilot study reported by Rider, Imwold, and Johnson (1986) to determine if similar results would be obtained. That there is more to physical education than teaching physical activity has been noted (Pollock & Blair, 1981). In addition to teaching sports and other motor skills, a need exists for more emphasis on the health-related aspects of fitness in school physical education programs (Johnson & Haragoens, 1988). An experimental (N=142) and control group (N=71) of ninth grade students, in a pre-post test situation, were administered: (a) The Martens Attitude Scale (1979); (b) The Personal Fitness Knowledge Inventory (Rider, Imwold, and Johnson, 1986); and (c) The AAHPERD Health-Related Fitness Testing Program (1986). The control group continued in the traditional physical education program. Following the nine week program, the students were retested using the same instruments. A multivariate analysis of variance (MANOVA) revealed that the experimental and control groups differed significantly on all three measures. The treatment group had more positive attitudes towards physical activity, increased personal knowledge about fitness, and had significantly improved their own health-related fitness. To assist interpretation and cross-validate the results, the parents of the treatment group were administered a mail survey asking about their perception of the effects of the program on their children. They confirmed an increase in physical activity (59%) and an awareness of the concepts through discussion at home (69%). The most negative comment made was that the children missed the sports activities in the program. Based upon the results of this study, it is recommended that the personal fitness curriculum be extended for an entire year, integrating sport skills and activities.

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USING A DECISION MAKING MODEL TO ENHANCE VOLUNTARY PARTICIPATION IN PHYSICAL ACTIVITY DURING LEISURE TIME. Robyn S. Lock, University of Toledo.

The purpose of this study was to determine if instruction and participation in deBono's CoRT Thinking Program would improve student abilities to determine objectives, establish priorities, consider alternatives and evaluate their commitment to and participation in physical activity. Four instruments; the Commitment to Physical Activity Scale (CPA), the Thoughts on Physical Activity Instrument (TPA), the Physical Activity Participation Inventory and Summary Questions were used to answer the research questions.

The Nonequivalent Control Group Design was used. A total of 142 ninth grade students served as subjects for this study. The experimental group (n = 64) followed the CoRT I program. The quasi-control group (n = 26), developed to control for the Hawthorne Effect, interacted with the researcher but not in the same way as the experimental group. The control group (N = 52) did not interact with the researcher.

The evidence from the study indicated the following conclusions. The CPA was a reliable measure of commitment in these ninth grade students. The students in the experimental group demonstrated significant gains in thought generation. The students in the experimental group reported that their aims and goals concerning physical activity were clarified, that they had more positive feelings about physical activity, that their participation was important, that they considered more factors in making decisions and were more aware of their priorities concerning physical activity. The students in the experimental group did not report an increase in participation levels or score higher on the CPA than the control groups. The majority of the students in the CoRT I program considered their participation in the program a valuable one.

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FACTORS INFLUENCING THE EXERCISE ADHERENCE LEVELS OF NOVICE EXERCISERS. Kymberly D. Long-Wallace, W. Michael Felts, East Carolina University.

The purpose of this study was to prospectively examine the factors influencing program satisfaction and adherence among individuals enrolled in aerobics programs in commercial fitness facilities. The 41 volunteer subjects were individuals who reported having not exercised regularly in the previous three months and were newly enrolled in the respective exercise program. At the beginning of the 9-week study period each subject completed the "Pre-program Questionnaire" eliciting demographic data, information concerning prior experience in organized exercise, and initial motivations for beginning the current program. At 3-, 6-, and 9-week intervals the subjects completed questionnaires concerning their perceived psychological outcomes of exercise (stress release and changes in self esteem), physiological outcomes of exercise (weight loss/maintenance and body toning and strengthening), perceived social support for exercise (encouragement received from friends, family and fellow exercisers), and perceived program satisfaction (convenience of the class times, the enjoyability of the exercises and the instructor's motivating abilities). Two scores were generated from questionnaire responses, one regarding subject's perceptions of exercise outcomes and a second assessing the influence of these perceptions on the decision to continue exercising. Nineteen subjects were classified as high adherers, 10 as medium adherers and 12 as low adherers based on self-reported attendance. Correlation coefficients calculated to determine the relationships between outcome scores and program satisfaction revealed program satisfaction was related to physiological effects and program characteristics at all 3 assessment intervals, to psychological effects at time periods one and two, and unrelated to perceived social support. Self reported program satisfaction was significantly related to adherence at all three assessment intervals. Physiological and psychological effects and perception of their influence on adherence were positively related to adherence level at each of the three assessment intervals. Reporting weight-loss as an important motivator to initiate exercise was negatively associated with exercise adherence. These finding emphasize the importance of exercise professionals establishing realistic expectations for novice exercisers. It appears emphasis should be placed on individual benefit rather than specific program features.

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THE DEVELOPMENT OF AN INSTRUMENT FOR EVALUATING SOCIAL DANCE PERFORMANCE.

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The purpose of the study was to establish the validity and reliability of a rating instrument designed to evaluate the complex skill of social dance. The form was composed of five subscales: ability to lead/follow, footwork, style, rhythm, and overall appearance. The components of good social dance performance were defined and were used to form a scale of expected behaviors. Based on critiques of three social dance experts, only minor revisions were made to the scale. Twelve couples recruited from a social dance class were videotaped performing the fox trot. Each performance was rated independently on four occasions by three dance instructors who had attended a two hour training session. On each occasion the raters evaluated the subjects in a different order. Objectivity coefficients ranged from .44 to .88, but were $\geq$ .80 for only total score, and rhythm and overall appearance subscales. Two raters had intrarater reliability coefficients $\geq$ .81 for total score, rhythm, overall appearance, and ability to lead/follow. The third rater was more inconsistent with coefficients ranging from .63 to .84. Generalizability analysis (persons by raters by days) revealed that there was no systematic rater bias except for the style subscale (20.5% of total variance) and that there was rater bias for selected subjects (7.3 - 20.0% of total variance) for all subscales and total score. Total score and overall appearance subscale had the least measurement imprecision (total variance attributed to subjects $\geq$ 75%). When generalizing to one rater and one testing occasion, the only acceptable generalizability coefficients ($\geq$ .80) were for the overall appearance subscale and total score. The instrument is acceptable to use if the focus is on total score.

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IMPACT OF A 21 YEAR DRINKING AGE LAW ON UNIVERSITY STUDENTS' ALCOHOL/DRUG USE. 1986-1989. Lotterhos, Jerry F., M.S.W. and Holbert, Don, Ph.D.

This paper is based on the findings of the fourth year of a five year cross sectional study to examine the impact of a 21 year drinking age law on university students alcohol/drug use. Questionnaires were given to introductory health classes in April, 1986, four months prior to the implementation of the law, in April 1987, in February, 1988, and in April, 1989. Focus areas of the study include attitudes and behaviors toward the new law, alcohol/drug use patterns, contexts for use, and negative consequences. The data were compared for the first four years and major findings include: 90% of the students are alcohol users; 85% of all alcohol users began their regular use by age 18; 80% of the students disagree with the law; students changed their primary drinking locations to more clandestine contexts; negative consequences remained the same; daily drinking decreased slightly; heavier drinking per occasion increased; students used false identification (11%), a third party (71%), or parents (5%) to obtain their alcohol; other drug use decreased. Data are also analyzed by gender, ethnic origin, age, classification, religion, grade point average, and income status. Variations in response to the law do exist in these demographics.

Students are continuing to drink in more clandestine circumstances, use larger amounts per occasion, use illegal means to obtain alcohol, and suffer continuing negative consequences. Findings question age law as an effective means of controlling alcohol use/abuse, with implications for public health education and public policy.

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THE RELATIONSHIP BETWEEN ATHLETIC ABILITY AND SOCIAL DESIRABILITY WITHIN ELEVEN AND TWELVE YEAR OLD MALE BASEBALL PLAYERS.

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The purpose of this investigation was to determine within youth baseball teams, ages eleven to twelve, the relationship between social desirability and athletic ability. Social desirability was assessed by sociometric questionnaire and athletic ability was reflected by batting average, batting order position, coach's assessment of player ability, and teammate assessment of player ability. A second purpose of this investigation was to examine the relationship between social desirability and both defensive and offensive player position with respect to centrality theory. Two hundred and sixty-one eleven and twelve year old male baseball players from eighteen teams served as the sample population. At the end of the 1986 baseball season, the players were issued a sociometric questionnaire designed to establish the social desirability and athletic ability of each player as assessed by their teammates. All head coaches were asked to supply batting averages, batting lineup positions, defensive fielding positions, and overall playing ability rankings for each of their players. Pearson and Spearman's Rho correlations were used to test for significant relationships between the desirability data and the ability, as well as, the position data. In addition, t-tests and one way analysis of variance were used to further analyze the position data. Social desirability was found to be significantly, alpha _ .001, correlated to all of the ability measures. These correlations were as high as $r = .8020$ and Rho = .7828 for the relationship between variables based on teammate perception of both popularity and ability. The top half of the batting order was also found to score significantly, alpha _ .001, better than the bottom half on all social and ability measures. A significant, alpha _ .01, difference existed between the defensive player positions as well. In general, shortstops and pitchers scored best and outfielders fared worst on all variables. The following conclusions were made:

1. Social desirability was positively correlated to ability, whether assessed by teammate or coach.
2. The fact that this correlation exists within organized teams is of considerable interest.
3. Social desirability was also linked to both offensive and defensive player position lending some support for the existence of a centrality effect.

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THE ANOMALY OF THE SUMMER SCHOOL AND THE PROFESSIONALIZATION OF PHYSICAL EDUCATION, 1920-1930.

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The purpose of this study is to investigate the contributions of summer school programs during the 1920's toward the processes of professionalization of physical education. These programs are studied within the context of professionalization criteria which includes the dissemination of a theoretical body of knowledge, the socialization of students to the ideals of professional behavior, and the conferral of prestige to the trained practitioner. Both men's and women's programs at such state universities as California, Michigan, Wisconsin, Nebraska, Illinois, and Pennsylvania are examined as to the goals of the summer program, opportunities for certification, and the possible conflict between the summer objectives and those of the four year degree program. While summer schools had been a popular method for professional training before World War I, the proliferation of physical education degree programs in colleges and universities after 1920 changed the purpose of summer programs which increasingly became opportunities for continuing education rather than a primary avenue to professional education. It is the conclusion of this research that the goals of women's programs adhered more closely to the ideal of continuing education than did the men's. Faced with significantly fewer male physical education students enrolled in degree programs, the shortage of trained men was acute. Thus, universities addressed this shortage with summer courses which offered certification for coaching. Such certification staisfied training standards for public schools teaching in some states. Thus, the need for a degree was circumvented. Although summer programs served the profession as opportunities for professional growth to the trained physical educator, it is likely that summer school programs also inhibited the full conferral of professional status by providing abbreviated opportunities for training and the socialization of professional ideals of neophytes. This historical study has been informed by a wide variety of primary and secondary sources. Primary sources include such archival materials as catalogs, bulletins, and presidents' reports. The works of significant physical educators like Wood, Hetherington, Bowen, Trilling, Cassidy and others have been utilized. A survey on the status of physical education in 1921 by the American Physical Education Association and the Carnegie report on the status of American collegiate athletics (1929) were particularly useful.

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THE RELATION OF CONTENT KNOWLEDGE TO INSTRUCTIONAL PERFORMANCE IN PRESERVICE TEACHERS.

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Research on teaching and teacher education has largely avoided the content issue when assessing teaching skills. Content knowledge and pedagogical content knowledge are in fact important components of the knowledge base in teaching (Shulman, 1986a). The purpose of this study was to investigate the effects of content knowledge and pedagogical content knowledge on the use of general pedagogical skills for the beginning teacher. Subjects of the study were 16 physical education preservice teachers in their junior year. Subjects taught a total of six lessons, two lessons in three different content areas. Folk dance (low content knowledge) and two manipulative tasks (high content knowledge) were used as content. A variety of instruments were used to assess content knowledge, pedagogical content knowledge, and general pedagogical skills.

The results of the study seem to suggest that the nature and knowledge of content does impact the teaching behaviors of the beginning teacher. Dance instruction was characterized by command teaching which caused increased instruction time, a lower rate of feedback, and increased use of extension tasks, repeating tasks, and walk through demonstrations and summary cues, particularly during activity time. Instruction of manipulative tasks was characterized by direct instruction with independent practice which caused increased activity time, an increased use of application tasks, and full demonstrations and summary cues before independent practice. The preservice teachers appropriately selected these profiles of general pedagogical skills. A lower level of activity time, clarity and accuracy of task presentation, specific feedback, refining tasks, qualitative information, full demonstration and summary cues, and structuring and reinforcing behavior would seem to indicate that content knowledge itself played an important role in the effectiveness of the teacher. The use of activity time, the clarity and accuracy of task presentation the use of refining tasks and the use of summary cues were lower in the dance lessons which should not have been effected by the nature of the content itself.

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TECHNICAL WRITING IN HEALTH JOURNALS: AN ANALYSIS OF STYLISTIC FEATURES IN HEALTH JOURNALS. Beverly S. Mahoney, Penn State University.

Language is a fluid process that adapts itself to changes in the world. Although writers have the advantage of rewording and restructuring articles they produce many times before the article is published, they have the disadvantage of not seeing their audience. Because of lack of feedback and non-verbal communication, authors do not know if the information they wish to convey was or was not understood. At present there is little information about the technical quality of the writing that appears in professional journals commonly used by health educators. The purpose of this study was to analyze and compare the technical writing quality in selected professional journals used by health educators. A stratified random sample of 50 articles published in four journals between August 1987 and August 1988 were included. All articles were electronically scanned using a Kurzweil 4000 Intelligent Scanning System to facilitate entry of the text into a computer file. Two computer software packages, RightWriter 3.0 and Grammatik II were selected to assist in the analysis. The two packages were selected because of their diversity in analyzing selected aspects of articles. Additionally, 8 common technical writing errors not directly included in either software package were also utilized in the analysis. All journals included in the study contained articles with complex and confusing stylistic features. One-way analysis of variance showed significant differences between journals in several categories, most notably readability, total strength index, and passive constructions. Articles from all journals contained enough technical writing errors to lead one to conclude that persons who publish in health journals use stylistic constructions that may not foster clear communication between writer and audience. Perhaps professional preparation program administrators would be well-advised to include coursework which enables students to understand the techniques that can be utilized to help them create clear and concise written reports of research, practical, and philosophical information.

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THE RELATIONSHIP OF EATING DISORDERS TO DRUG AND ALCOHOL ADDICTION: THE FAMILY TIE THAT BINDS.

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The purpose of this study was to determine if the family of origin factors associated with drug and alcohol addiction are the same as those in persons with eating disorders. To assess family environment, approximately 111 patients from three drug treatment centers and approximately 200 junior college students (chosen for variety of age) filled out a 40-item Family Environment Questionnaire. Participants self-reported their level of drug usage (low, heavy or addict) and the presence or absence of an eating disorder. Of the 311 people in the study, 141 reported having had symptoms of an eating disorder (group 1), 93 classified themselves as being alcoholics or addicts (group 2) and 112 reported neither condition (group 3, control group). Of the 141 people reporting symptoms of an eating disorder, 49% were also alcoholics or addicts. Of the 93 people classifying themselves as alcoholics or addicts, 67% also reported having symptoms of an eating disorder. As expected, group 3 (control group) had a mean of .39 parents or grandparents who were alcoholics/addicts while group 2 (addicts) had a higher mean (1.44) of parents and grandparents who were alcoholics/addicts. But group 1 (eating disorders) also had a higher mean (1.17) of parents or grandparents who were alcoholics/addicts. A factor analysis was conducted to isolate five interpretable dimensions of family environment. Those factors were 1) family health, 2) parental support, 3) independence, 4) abuse and 5) parental control. A discriminant analysis was performed on the scores from groups 1 (eating disorders) and group 3 (control group) and it was found that the Family Environment Questionnaire could predict the correct group 74.6% of the time. The findings of this study shed new light on the link between alcohol/drug addiction and eating disorders. Eating disorders prevention should be part of drug prevention programs playing special attention to the possible genetic contribution. The family provides the most successful route for intervention and treatment in both of these potentially fatal diseases.

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FAMILY FACTORS AS SIGNIFICANT CONTRIBUTORS IN DRUG USAGE OUTCOME AMONG OFFSPRING. Terri Mulkins Manning, Oklahoma State University.

Family environment factors and drug usage among offspring have been highly correlated in the literature. The purpose of this study was to determine if certain factors in family of origin could predict, with any consistency, the drug usage category of offspring. To assess family of origin, approximately 111 patients from three drug treatment centers and approximately 200 junior college students(chosen for their variety in age) filled out a 40-item Family Environment Questionnaire. Participants classified themselves as either low users, heavy users or alcoholics/addicts (definitions provided). Through Analysis of Variance, it was determined that statistically significant differences occurred on 36 of 40 family variables. A factor analysis was performed to identify five interpretable dimensions of family environment. These five factors were 1) family health, 2) parental support, 3) independence, 4) abuse and 5) parental control. A discriminant analysis was performed on the scores from all three groups and it was found that the Family Environment Questionnaire could correctly predict the category of drug usage 70 of 100 times by the way participants perceived their family environment. The findings of this study should have significant meaning for professionals working with families in either the educational or therapeutic setting. It is reasonable to assume from these findings that it is possible to predict risk of alcohol and drug dependency by the way a person perceives their family environment. Drug education should take on a new, more effective focus rather than seeing drug and alcohol dependency as a youth phenomena caused primarily from external factors. Parents, especially of preschool children, should be targeted as a group that can make a difference in halting the rise of drug usage in future generations.

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DIETARY AND ACTIVITY PATTERNS OF YOUNG ADULT MALE SMOKERS.

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Smoking is an important heart disease risk factor. By the age of 18, 1 in 6 teenagers become a smoker and very often these young smokers do not think that the health hazards linked to smoking will happen to them. This study focused on the dietary and activity patterns of young adult males between the ages of 18 and 29. The purpose of this investigation was to determine if the dietary/activity patterns seen in older, more established smokers would present themselves in this younger population. Most studies have included this age group with smokers up to 60 years of age. Those studies have generally shown smokers to be less active and more undernourished in comparison to nonsmokers. A carefully controlled trial has not been done on younger smokers to determine if they have already adopted the lifestyle of a chronic smoker. Thirty males, 20 smokers (S) and 10 nonsmokers (NS), matched for body weight and fitness level, were studied. ANOVAs showed no significant differences in age (22.4 ±1.2 yr), weight 80.3 ±.5 kg), body fat (16.4 ±.7%), or fitness level (39 ±.3 $ml \cdot kg \cdot min^{-1}$). The smokers had a smoking history of 4 yr (±.8) while the nonsmokers never used tobacco in any form. A computerized nutritional analysis using the NutriComp System was done on 3-day food diaries, which incorporated 2 weekdays and 1 weekend day. The Minnesota Leisure Time Activity Survey was used to assess estimated leisure activity over a 1 year period. ANOVAs showed no significant differences in averaged daily caloric intake between groups (S=2348 ±545 kcal/day vs NS=2412 ±886 kcal/day); nor were there any significant differences between groups for nutrient distribution (FAT=32 ±6%; PROTEIN=15 ±5%; CARBOHYDRATE=42 ±6%). Even though all of the subjects were considered to be sedentary and low-fit, Mann Whitney U Tests on the total yearly activity scores resulted in significantly lower scores for the S (189454 kcal/yr) in comparison to the NS (233408 kcal/yr). The median ranking for the S was 13.3 vs 19.9 for the NS ($p<.05$). The results suggest that these young smokers are already more inactive than their matched nonsmoking counterparts, however their dietary patterns are still very similar.

Supported by grants from NIDA DA/HL #04174 and the School of Education, University of Pittsburgh, #01031271.

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THE INFLUENCE OF DIRECT AND AMBIGUOUS INFORMATION ON THE EVALUATION OF MALE AND FEMALE ASSISTANT COACHING APPLICANTS

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This study examined whether gender bias exists in the evaluation of male and female high school basketball coaching applicants of varying levels of competence. Male head coaches (N=186) of Iowa high school girl's basketball read background information regarding hypothetical male and female assistant coaching applicant possessing either high or low levels of competence. Using eight point Likert scales, coaches rated applicants on 13 direct and 14 ambiguous items (N=27). The label "direct" was given to statements which required coaches to rate applicants on qualities for which written information was provided. "Ambiguous" referred to statements which asked coaches to make judgements about applicants abilities, although no specific information was provided in the scenarios about such attributes. Additionally, coaches were asked in a forced choice format to indicate which of the two candidates they would select to be hired. The following hypotheses were tested: (1) Male head basketball coaches would evaluate male coaching applicants more highly than female applicants when such judgements were based on "ambiguous" information, (2) Male head coaches would evaluate male and female applicants was provided, (3) Male head coaches would more frequently recommend that the male rather than female applicant be hired. A multivariate analysis of variance was conducted to determine the influence of sex and competency of the coaching applicant on the assignment of scores to the direct and ambiguous items. This showed that regardless of the gender, applicants were evaluated similarly on the direct and ambiguous items. Significant differences by competency level were found. High competent applicants were scored significantly higher than low competent applicants on direct and ambiguous items. No significant interaction effect was found between sex and competency level for either the direct or ambiguous items. Analysis of the data on coaches' forced choice of who they would recommend be hired as their top assistant showed that, regardless of competency level of the applicant, a significantly greater number of coaches would hire the female rather than the male applicant.

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INSERVICE NEEDS ASSESSMENT FOR PHYSICAL EDUCATION IN THE OVERSEAS INTERNATIONAL SCHOOL. Patricia Ann Mattausch-Johnson, Grace Goc Karp, Washington State University.

The purpose of this study was to investigate teacher needs and concerns for physical education inservice staff development in the overseas international school setting. According to McBride (1985) and Oliver (1987), physical education inservice design and implementation has been neglected and particularly in the overseas international schools. Isolation from university influences of continuing education, from visiting resource people and subject area conferences are often cited as causes for this neglect. Needs assessment questionnaires were mailed to physical educators via the superintendents of East Asia Regional Council of Overseas School (EARCOS) and Near East/South Asia Council of Overseas School (NESA) that had previously agreed to be a part of the study. The questionnaire was divided into the following sections: General Inservice Information, Physical Education Needs Assessment Questionnaire and Demographics. The needs assessment section consisted of 39 inservice content statements in which respondents rated each on a five point Likert scale. The content statements were grouped into six categories: curriculum content, overseas factors, instruction, classroom management, evaluation and personal growth. At the completion of each category, teachers were asked to choose the inservice topic that was most desired. Simple descriptive statistics were used to summarize the data. Of the 137 questionnaires mailed overseas, 78% (n=107) were returned. 39.3% (n=42) of these were from NESA region and 60.7% (n=65) from EARCOS region, of which 47.2% (n=50) were women, while 52.8% (n=56) were men. 62.1% (n=64) indicated U.S. nationality, with 37.9% (n=39) being of different nationality. 70.2% (n=73) had 9 or less years of teaching in the overseas schools, 29.8% (n=34) with 10 years of more. 19.6% (n=21) taught elementary, 15.9% (n=17) taught middle school, 17.8% (n=19) taught high school, and 46.7% (n=50) taught a combination of levels. Inservice was offered at 84.9% (n=90) of the overseas schools surveyed and 51.9% (n=14) indicated that it did not pertain to physical education, and 57.6% (n=53) indicated that administrators selected the workshop content. Most teachers indicated attendance at workshops was mandatory with 53.2% (n=50). The six most significant areas of concern for the physical educators overseas were: fitness and wellness 22.4% (n=24), instructional strategies for teaching ESL students 32.3% (n=32), effective teaching strategies 37.6% (n=38), motivation techniques 57.3% (n=55), diagnosing skill development 80.2% (n=81), and self-evaluation of teaching 46.5% (n=47). From the information gathered in this study, it would appear that a needs assessment tool would be of value, as indicated by 83.3% (n=75), to the overseas international schools. Such a tool would provide a subject specific inservice program, and area conference organizers would be able to better determine the needs of the overseas physical education teachers thus decreasing the effects of isolation in these schools.

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Case Studies of Physical Education Teachers From a Research-Based Preparation Program

A case study approach was utilized in the investigation of the beliefs and teaching practices of selected physical education teachers who were recent graduates of the professional prepartion program of the University of South Carolina. These teachers' beliefs and practices were examined in relation to the professional preparation program and the viewpoint of the physical education teacher educators at the University.

Participants studied were six physical education teachers who were in their second to fourth year of teaching. On-site observations, videotaping, psychometric inventories, questionnaires and two audiotaped interviews were used to obtain data. The primary research tool was an in-depth semi-structured interview guide. A videotaped lesson was analyzed using a modification of the Qualitative Measures of Teaching Performance Scale and a system to determine use of time. The psychometric inventories yielded data on the teachers' sense of efficacy and pupil control ideology.

A synopsis of the six individual case reports was presented. Findings were synthesized and interpreted by the investigator.

The following conclusions were drawn:

1. The teacher educators indicated that all teachers demonstrated competence in teaching skills during their preservice preparation.
2. The teachers' professional beliefs were clearly established during their preservice work and the current professional beliefs of the participants were mostly consistent, although not identical in range and degree of emphasis, with those of their teacher educators. Factors in the teaching environment have influenced many of the teachers to make alterations in professional beliefs.
3. The current teaching practices of the teachers are similar to the practices advocated by the teacher preparation program. Most teachers have made minimal changes in teaching practices.
4. The teachers indicated that they felt that their preparation was exceptionally good.

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THE TCQ-P.E.--AN ADAPTATION OF THE TEACHER CONCERNS QUESTIONNAIRE INSTRUMENT TO A PHYSICAL EDUCATION SETTING Ron E. McBride Texas A & M University

Considerable attention has been accorded the study of teacher concerns in recent years. Numerous classroom studies (e.g. Griffin-Jensonne & Caliste, 1984; Silvernail & Costello, 1983) have supported Fuller's (1969) developmental theory of teachers progressing through three stages of concern as they grew and matured in their teaching environments (self--survival concerns, task--routine tasks of teaching, and impact--meeting the needs of students). Results in physical education research have been mixed and questions have been raised about the validity of Fuller's model in this setting. To date, all studies have used George's (1978) Teacher Concerns Questionnaire (TCQ) to gather data from physical educators. The instrument was originally designed for use in the traditional classroom to identify teacher concerns. It has been suggested that the TCQ, in its entirety, may not be as applicable in the physical education setting. Earlier studies have pointed to the inadequacy of the 'task' scale and support this assertion. The purpose of the present study was to address this issue in a three-phase investigation to modify the TCQ for use by physical educators. More specifically, the 'task' scale was targeted for investigation Initially, a random sample of 100 physical educators was asked to identify five routine tasks of teaching they felt prevented them from attaining their teaching goals. From the 500 statements collected, inductive analysis (Patton, 1980) was used to identify 10 routine tasks of teaching. The second phase entailed generating a 10-item questionnaire with a five-point Likert scale that was sent to physical educators across the country. Responses were received from 301 junior and senior high school p.e. teachers (return rate=60%). The responses were subjected to a principal components factor analysis and rotated to the varimax criterion. Analysis of weighted eigen values identified five items for use in the revised TCQ. A follow-up part-whole correlation analysis identified the same five items as being most representative of the 'task' construct. These items replaced the original TCQ task items and the revised questionnaire was completed by 31 physical educators using the one week test-retest format. Reliability coefficients were: Total test: (r=.89); Self scale: (r=.87); Task scale: (r=.92); Impact scale: (r=.82). A one-way MANOVA revealed no overall gender effects among the respondents on the revised instrument.

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AN ANALYSIS OF INTRODUCTORY HEALTH EDUCATION TEXTBOOK MULTIPLE-CHOICE TEST ITEM FILES.

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Textbook test item files are a readily available source of student evaluation for the college health instructor. The majority of introductory textbooks in health education are accompanied by multiple-choice test item files. These files benefit the instructor in saved time, but poorly written files may be more of a liability than a benefit. At present, there have been no formal attempts to quantify the technical errors present in the test files of commonly utilized introductory college level personal health textbooks. The purpose of this study was to assess the prevalence of 7 common technical errors present in multiple-choice test item files of textbooks used in introductory college personal health courses. The sample of test items utilized in this study consisted of a stratified, random sample of multiple-choice items selected from the test files provided with 9 of the most popular college level personal health textbooks currently available. Items were selected in proportion to the number of content areas across the 9 files. A total of 369 items were selected which represents a 95% level of confidence with ± 4% error. The principles of writing multiple-choice test items from 15 recognized test writing experts were reviewed. Of some 34 different principles provided through this review, 7 were endorsed by 60% or more of the experts and thus became the criteria for review of the selected sample of items. As items were reviewed, they were coded as having one or more violations of the 7 criteria thus each item received 7 scores. Data were analyzed using frequencies of violations, Chi Square, and MANOVA. Of 359 items analyzed, a total of 264 technical errors were discovered. Only 156 items did not contain one or more errors. The most often identified error was that of "Inclusive Options" (All of the above, or None of the above). Unnecessary repeating of words was second, and lack of presentation of a definite problem ranked third. Significant differences were found across content areas in terms of the type of error identified. Technical errors in tests used to evaluate students can create problems for students who are not "test wise" and can help students who are "test wise." Regardless, if technical errors persist in test items utilized to evaluate students, one must question the validity of the evaluation process.

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KINEMATICS AND IMPULSE CHARACTERISTICS OF MODERN DANCE LANDINGS*

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The purpose of this study was to compare the shock absorption strategies of dancers, dance students, and non-dancers during employed during the landing phase of a jump. The joint kinematics and vertical impulse characteristics of modern dance landings (feet in parallel) from straight body jumps were quantified and compared across groups. Six accomplished dancers (D), six dance students (S), and six control subjects (C) with no exposure to dance instruction served as subjects. Joint kinematics and reaction force data were acquired simultaneously using shuttered video (60 fps) and an AMTI force plate (1000 Hz). Statistical comparisons of landing characteristics were made between subject groups using ANOVA and ANOCOVA ($p<.05$). The results indicate that dancers experienced lower impact forces (μ_D=3.0 BW) than the students (μ_S=3.2 BW) and the controls (μ_C=3.7 BW), however, no significant differences were found between groups at the .05 level. No significant differences in minimum ankle angles were noted, however, significant differences in minimum knee (μ_D=117; μ_S=123; μ_C=136 degrees) and hip angles (μ_D=143, μ_S=142; μ_C=158 degrees) were found. Dancers also demonstrated significantly greater knee angular velocities(μ_D=371; μ_S=329; μ_C=271 degrees/s) than the students and controls. These results suggest participation in dance may influence the shock absorption strategy selected during the landing phase of jumps.

* Experiment performed in Penn State Biomechanics Laboratory; Force plate provided by the US Olympic Committee.

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THE EFFECTS OF VARIOUS BASKETBALL SIZES UPON THE SHOOTING PERFORMANCE AND TECHNIQUE OF SIXTH GRADE BOYS AND GIRLS. Charles D. Mead, University of Kansas.

The purpose of this study was to determine the effects, if any, of various basketball sizes and weights upon the shooting performance of sixth grade boys and girls when using basketball goals at a level of nine feet. A secondary purpose was to observe the mechanical principles of shooting and rate each participant on technique applied to each sized ball. The different sized basketballs used were 26 inches, 28 inches, and 30 inches in circumference. Three treatment conditions were administered to 89 subjects randomized into six order of treatment groups. The instrument used to measure shooting performance was the Speed Spot Shooting Test (SSST) recommended by AAHPERD. The instrument used to assess techniques applied to each ball size was the Mead Speed Spot Shooting Profile Analysis (MSSSPA). All of the shooting stations were video-taped using camcorders. From the video replay, a group was observed and rated on techniques applied to each sized ball using the MSSSPA. An analysis of variance with repeated measures was used to analyze the data obtained from the SSST and the MSSSPA The first analysis of variance was performed to determine: (a) interaction effects of gender to ball size, (b) gender differences, and (c) ball size effects. An analysis of variance was performed to determine the direction of ball size effects. The .05 level of significance was applied to all statistical tests. The analysis revealed a significant difference on performance between boys and girls using the SSST and techniques applied using the MSSSPA. None of the three ball sizes were shown to be specifically suited by ball size for all boys or for all girls using the SSST or the MSSSPA. A significant difference for ball size was found on both the SSST and the MSSSPA. Significant linear effects were found on ball size using the SSST. The dependent variable increased from mini-sized ball to regulation-sized ball on the SSST. Significant quadratic effects existed using the MSSSPA. The junior sized ball was significantly different from either the mini-sized ball and the regulation-sized ball. The distribution of scores on the SSST concluded that all of the negatively-skewed distributions may have indicated the most appropriate basketball sizes for the majority of members in a physical education class. This included: (a) total group using the small-sized ball, (b) females using the small-sized ball, and (c) males using the medium-sized ball. Also, it may be concluded that individual differences may demand a variety of ball sizes in a physical education class involving 12-year old boys and girls.

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THE RELATIONSHIP BETWEEN TEACHERS' PERCEPTION OF CHILDREN'S MOTOR SKILL COMPETENCE AND CHILDREN'S PERCEIVED AND ACTUAL MOTOR SKILL COMPETENCE.

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The model of perceived competence suggests that the level of confidence a child has influences such variables as expectations, persistence and performance. Harter (1979) specified three major perceived competence domains which are relevant to young children: cognitive, social, and physical. Harter proposes that children with high confidence will persist longer and perform better than children with low confidence and that children do not feel equally competent in every skill domain (Harter, 1982). An important issue in terms of achievement motivation is determining the accuracy in which teachers rate their students' perceived competence and actual motor skill competence levels. A teacher may perceive a child as having high ability when the child has low perceived competence. Based on Harter's model, the child's perception of low competence will result in low achievement motivation. Therefore, the purpose of this investigation was to examine the relationship between teacher ratings of students' motor skill competence and students' perceived and actual motor skill competence. The subjects in the study consisted of 225 children between the ages of 9 and 12 years. Each subject completed a scale (MSPCS) to measure motor skill perceived competence (Rudisill, Mahar, Meaney, 1989). After completing the MSPCS, the subjects participated in a series of physical tests to measure their actual motor skill competence. In addition, the children's physical education teacher evaluated the motor skill competence of each student. The results revealed a low to moderate relationship ($r=.41$) between the teacher ratings of the children's motor competence and the children's perception of their motor skill competence. An inspection of the means showed that the teachers did not perceive the children's competence as high as the children perceived their own competence. Additionally, low to moderate correlations between the teacher ratings of the children's motor ability and their actual motor competence ranged from 0.43 to 0.58. In conclusion, it appears that teacher's rate children's competence differently than children perceive their competence. These findings suggest that assessment and evaluation techniques are necessary for accurately evaluating children's motor skill perceived and actual competence. The results will be discussed in terms of achievement motivation for motor skill learning of the importance of detecting children with low perceived competence in the early stages of learning.

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AN EVALUATION OF THE TRAVELERS COMPANIES' EMPLOYEE ASSISTANCE PROGRAM.

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Employee assistance programs (EAPs) have gained widespread attention as corporate health-enhancement and cost-containment strategies. Yet, despite a proliferation of programs, growth has been more a function of faith than of fact: the evidence supporting the efficacy of EAPs has been minimal to date. Therefore, the purpose of this study was to evaluate the effectiveness of an EAP implemented by The Travelers Companies. Evaluation focused on 152 employees submitting a first mental health claim for services rendered between July 1, 1987 and October 31, 1987. Of this population, 22 employees had accessed EAP immediately preceeding their date of service. The remaining 130 had not used any EAP services and were identified as a comparison population. Demographic contrasts between the groups showed no statistical differences ($p > .05$) by race, gender, age, marital status or salary grade. Mean claim totals were contrasted between the groups to assess the impact on health care costs. For non-chemical dependency diagnoses, a savings of $1,023 per person was observed ($p = .0001$) for the EAP group in comparison to the non-EAP group. EAP group members evidenced higher costs on chemical-dependency diagnoses; however, a limited sample size ($n = 6$) precluded any meaningful statistical comparisons. To assess the EAP's impact on employee productivity, performance ratings and salary grades were contrasted using pre-mental health claim service levels as a co-variate. Although not statistically significant ($p = .4910$), performance ratings for EAP employees decreased at a rate approximately one-half that of non-EAP employees. (Note: Corporate policy dictated a trend for performance rating deflation -- all Travelers employee ratings decreased during this period.) Additionally, mean salary levels for EAP employees increased by one full grade in contrast to non-EAP employees, whose salaries increased by only .7 of a grade. Again, these differences did not reach statistacal significance ($p = .6584$). These preliminary results suggest that EAPs have a possible beneficial effect on both the cost of treatment and employee performance. To overcome the limitations of this investigation, future reseach will continue this study, but will encompass a longer time and capture a larger sample for comparison.

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THE EFFECT OF AN INTERVENTION ON PREINTERN KNOWLEDGE AND ATTITUDE TOWARD PLANNING IN PHYSICAL EDUCATION.

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Preinternship and internship experiences comprise the most critical aspect of undergraduate professional preparation programs. Potentially, they can reinforce theoretical knowledge and skills taught in methods classes through applications in the public school setting. In essence, planned experiences can bridge the transition from theory into practice. However, previous research shows that preinternship and internship experiences have little impact on teacher knowledge and skills, and may in fact produce miseducative experiences. In view of this issue, the purpose of this study was to test the effect of a systematic supervision model on the knowledge and attitudes of preinterns toward selected aspects of planning for maximum learning. Subjects in the study were 18 senior level physical education majors enrolled in a secondary methods class. These subjects were randomly assigned to a treatment group (n= 9) and a control group (n = 9). Pre- and postintervention assessments of knowledge of and attitude toward planning components were assessed through paper and pencil tests, with a maximal attainable score of 100 for each measure. Following the preassessment, subjects in the treatment group participated in an intervention consisting of five 90-minute classroom sessions. Classroom instruction focused on 1) the development of performance objectives; 2) the use of mechanical analysis and teaching cues in lesson planning; 3) selecting activities at an appropriate level of difficulty; 4) planning for increased time on task; and 5) evaluating lesson effectiveness. Class activities included lecture and discussion of the knowledge base, analysis of videotaped lessons through systematic observation, partner and small group activities, and the use of structured planning forms. Subjects in the control group spent the same amount of time engaged in other aspects of study which were unrelated to the dependent measure (i.e. general sport skill knowledge). Both groups simultaneously engaged in preinternship teaching experiences (supervised teaching in secondary physical education at a laboratory school) throughout the intervention period. Postintervention administration of knowledge and attitude measures took place immediately following the last class session. Analysis of the data involved two independent Analyses of Covariance, with posttest scores adjusted for differences on the pretest measures. Results showed significant ($p<.05$) differences in adjusted posttest means for both measures. Subjects in the treatment group demonstrated gains in knowledge ($\bar{X}$ treatment = 88.1, $\bar{X}$ control = 62.4) and attitude ($\bar{X}$ treatment = 87.1, $\bar{X}$ control = 79.6) toward planning. These results have important implications for the design of preinternship and internship experiences for meaningful learning. A planned and structured approach to the development of these experiences may help to reinforce desired knowledge and attitudes, and to minimize knowledge obsolesence and rejection of theory.

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IMPACT OF AN EDUCATIONAL INTERVENTION ON A COHORT OF ALPHA-1 ANTITRYPSIN DEFICIENT TEENAGERS.

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This study was designed to evaluate the effectiveness of a one-on-one smoking prevention and educational intervention administered to a cohort of healthy AAT adolescents. Alpha-1 antitrypsin deficiency (AAT) is a health condition which places an individual at high risk for the early onset of emphysema, with the risk being greatly increased if an AAT deficient person smokes cigarettes. This high risk condition presents a situation where a determined effort for a smoking prevention/cessation intervention is critical. Subjects were 22 AAT deficient teenagers identified at birth through a unique neonatal screening program conducted in Oregon from 1971 through 1974. A group of 130 age comparable students from the Portland area served as the comparison group. All subjects responded to a pre-test version of the PHS Teenage Cigarette Smoking Self Test which assesses smoking attitudes, modified to include questions concerning smoking behaviors and knowledge of AAT. The educational intervention included a short (1/2 hour) one-on-one presentation about AAT, and the personal hazard of smoke for them. Six months after the educational intervention, the post-test questionnaire administered to the AAT adolescents included the pre-test PHS plus questions to assess reasons for nonsmoking behavior and an intervention evaluation by both AAT teens and parents. The AAT group pre-post test analysis resulted in significant differences in 3 of 6 subscales in the PHS, and an increase in AAT knowledge. Reasons for nonsmoking behavior was found to be a personal one, with their AAT health risk the strongest reason. Overall the AAT cohort and the comparison group scored very high on the questionnaire regarding knowledge of the health effects of smoking, and both tended to have negative attitudes toward smoking. No significant differences were found between the two groups in smoking behavior, attitudes, and knowledge. Significant findings include acknowledgement of their high risk health condition, an improvement in AAT knowledge and its interaction with smoke, and a change in attitudes with a stronger opinion against smoking. Recommendations include a neonatal screening program for detection of AAT followed by intensive family centered smoking and educational intervention, and longitudinal follow-up of the current cohort of AAT individuals.

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MENSTRUAL IRREGULARITIES IN ADOLESCENT RUNNERS. **Susan M. Moen, Dallas Baptist University; Charlotte F. Sanborn, Texas Woman's University; Nancy DiMarco, Texas Woman's University; Vic Ben-Ezra, Texas Woman's University; Sydney L. Bonnick, Aerobics Center, Dallas, Texas.**

A high prevalence of menstrual irregularities has been found in female runners, and the etiology remains unknown. The purpose of this study was to examine body composition, menarche, and dietary analysis in 10 amenorrheic runners, 10 eumenorrheic runners, and 10 eumenorrheic controls. The subjects were white, non-smokers, aged 15-18 years, who were not taking birth control pills. Eumenorrhea was defined as 10-13 menstrual periods/year. The amenorrheic runners, 2 of whom were primary amenorrheic, had less than 6 menstrual periods during at least the past year. The runners had trained 20-55 miles/week during cross-country and/or track seasons for the past 1-5 years. The controls had not been exercising consistently for at least the past year. Body composition data will be presented on skinfold calculations rather than hydrostatic weighing data due to concerns regarding bone mass and body density. Percent body fat was estimated from triceps and calf skinfolds using the technique described by Lohman (1986) and the formula by Slaughter et al. (1988). Three-day diet records were verified and then analyzed from 2 weekdays and 1 weekend day. The groups were statistically similar in age, height, and weight. Further, the 2 running groups did not differ in average training mileage. Percent body fat was significantly higher for the controls than for the amenorrheic or eumenorrheic runners (28.4%, 17.2%, 17.6%, respectively; $p < .01$), but the 2 running groups did not differ from each other. Even though 18 of the 20 runners began training before menarche, the amenorrheic runners had a significantly later menarche than the eumenorrheic athletes (14.2 yrs., 12.8 yrs.; $p < .01$). Nutritional analysis revealed no significant differences in any dietary factor among the groups. Caloric intakes of the runners averaged 2038 kcal/day of which 13.8% was protein, 49.7% carbohydrate, and 37.5% fat. A special concern for the female runners was the finding of low calcium and iron intakes (814 mg/day, 13.2 mg/day, respectively). These data do not support low body fat, average training mileage, or caloric intake as an explanation for menstrual irregularities seen in adolescent runners. The relationship between late menarche and menstrual irregularities is not known.

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INTERRELATIONSHIPS AMONG BODY HEIGHT, BODY MASS, AND RUNNING ECONOMY IN WELL-TRAINED MALE RUNNERS.

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Running economy (RE), defined as the aerobic demand ($\dot{V}O_2$) for a given submaximal running speed, is an important determinant of successful distance-running performance among individuals roughly comparable in maximal aerobic power ($\dot{V}O_2$ max). While a host of physiological and biomechanical variables have been linked to RE, little is known regarding the association between RE and basic structural indices. The purpose of this study was to examine the interrelationships among body height, body mass, and RE in well-trained male subjects. Metabolic and structural data were gathered on 24 accomplished distance runners ($\bar{X}$ $\dot{V}O_2$ max = 67.9 ± 5.3 ml/kg/min). RE was determined from timed gas collections obtained during the last three minutes of multiple 6-min treadmill runs performed at velocities ranging from 230 to 295 m/min. Data analyses indicated a significant ($p \leq 0.05$) inverse association between $\dot{V}O_2$ and body height ($r = -0.50$), but no such association was observed between $\dot{V}O_2$ and body mass. Comparisons between the 12 most economical subjects (Group A; $\bar{X}$ RE = 176.8 ml/kg/km) and the 12 least economical subjects (Group B; $\bar{X}$ RE = 192.6 ml/kg/km) also revealed that Group A runners were significantly more economical and taller (180.4 cm) than Group B runners (175.3 cm). These findings support previous research examining the relationship between body height and the metabolic cost of walking and suggest that body height, but not body mass, accounts for a significant proportion of interindividual RE variation among well-trained male runners.

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WOMEN'S PHYSICAL EDUCATION AND ATHLETICS AT THE UNIVERSITY OF NEW MEXICO: 1891 - 1913. L. Kay Morgan.

The purpose of this study was to explore the involvement of women in physical education and athletics during the early history of the University of New Mexico, Albuquerque. Although women's participation may seem to be paradoxical to attitudes concerning the acceptable behavior for women's dependent, supportive role, it was partially due to this inferior view of women that allowed them to participate. An important part of the early curriculum in many women's colleges and co-educational schools was physical education classes and activities. This was in answer to those who believed that formal schooling would be damaging to the female body. The program at the University of New Mexico was one example of women's early involvement in physical education and athletics in the United States. It is impossible to separate the original objectives for women's classes and athletics--they evolved from the same goals. The University of New Mexico women's early program included established classes and local competition as well as competitive events against teams from schools as far away as 300 miles. Athletics and other aspects of the curriculum were closely integrated and considered to be an important part of the total university life of all students. During the first 22 years of UNM's existance, women's athletics gradually changed from a program that was loosely organized and equal to men's, to one that was more organized and less important than men's athletics. A 1913 ruling limited the women's games to invitational play within the city. For the first time, these games were also closed to the public and played in the afternoons rather than the evenings. This administrative control drastically reduced the opportunities for women's participation and emphasized the changing difference given the importance between the women's and men's programs. This historical study utilized a wide range of primary sources such as school catalogs, local and school newspapers, school annuals, minutes of Board of Regents' meetings, notes kept by UNM's president, photograph collections, and announcements of school activities. Although women's participation was emphasized, the men's program had to be considered within the context of the same environment in order to gain an overall perspective.

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AIDS KNOWLEDGE AND ATTITUDES: AMERICAN INDIANS

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The purpose of this study was to ascertain the AIDS knowledge and attitudes of a select group of adult American Indians living on a Reservation in the Southeastern United States. A two-part AIDS inventory was administered to the adult workers in the major industries located on a Reservation in the Southeastern United States. Cronbach's Alpha was used to establish the reliability of the instrument. The data were analyzed by simple mathematical calculations of the percentage of agreement versus disagreement for each statement. Demographic data were reported by frequency. Findings indicated that the adult respondents were non-punitive and supportive of children, youth and family with AIDS. However, they tended to be judgmental concerning teachers and health professionals with AIDS practicing their professions. Attitudes expressed were highly moralistic and centered around cultural and social beliefs. The use of government money to support AIDS research was viewed positively. Generally, they were knowledgeable of AIDS risk factors. However, misconceptions existed regarding the transmission of AIDS. The results have implications for the development of an adult AIDS training program which will enable the Indian population to conduct an on-going AIDS educational program for their community.

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EFFECTS OF TRAINING IN SKILL ANALYSIS ON GENERALIZATION ACROSS AGE LEVELS.

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This study investigated whether critical element analysis training would generalize to an age range not specifically addressed in a training package. A single-subject multiple-probe baseline design across behaviors was implemented for the investigation. The intervention sequence consisted of photographic and video phases based on Keller's (1974) personalized system of instruction (PSI). Within the photographic phase each of the fundamental skills had a text consisting of pictures and information detailing correct and incorrect performance of the critical elements. The video intervention consisted of a PSI instructional and criterion test video. Generalization testing occurred following the movement analysis training. After a two-month nonpractice period, maintenance testing was administered. Data analysis provided the following findings: (1) baseline proficiency levels for all subjects were low, (2) significant improvement in analytical identification of critical elements occurred following administration of the photographic intervention and was maintained following the video intervention, (3) analytic proficiency was maintained at acceptably high levels despite a two-month period of no practice, (4) lack of induction in this and other studies (Kniffin, 1985; Halverson, 1987) suggests that analytic proficiency is skill-specific, (5) generalization across age ranges occurred within the study; individual subject data demonstrate that trained elements do generalize to untrained age levels, and (6) a number of critical elements were difficult for students to master. Subjects made analysis errors on criterion tests for elements that (a) happened very quickly, or (b) required estimation of a specific angle at a joint. The results of this study carry implications for professional preparation programs. Analytical skill proficiency would enhance the majors' ability to give effective and efficient feedback to the learner. To reduce the gap between desired and actual performance, teachers must be able to observe, analyze, diagnose, and prescribe. The ability to perform such a sequence is trainable and should occur within the teacher training program.

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AEROBIC CIRCUIT TRAINING IMPROVES CARDIORESPIRATORY ENDURANCE, METABOLIC CONTROL AND LIPID PROFILES IN TYPE I ADOLESCENT DIABETICS

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The purpose of this investigation was to assess the effects of a 12-week aerobic circuit training program on maximum oxygen consumption (VO_2max), cardiac output (Q), total cholesterol, high density lipoprotein cholesterol (HDL-C), low density lipoprotein cholesterol (LDL-C), glycosylated hemoglobin (HbAlc) and percent body fat in 10 males with Type I Diabetes and 11 non-diabetic males, aged 12 - 21 years. Initial measurements were determined from fasting blood samples for cholesterol, cholesterol fractions and HbAlc. In addition, a graded maximal exercise stress test was performed to determine VO_2max, and cardiac output. All tests were repeated following the training period. The training consisted of a 45-minute aerobic circuit, 3 times per week, which included 30 different activities divided into five, 3 minute aerobic stations: jogging, rowing, cycling, stair climbing and a combination arm-leg ergometer. In addition, there were twenty-five 30 second stations emphasizing calisthenics, flexibility and weight training. Data analysis was completed using a 2 x 2 ANOVA with repeated measures. Significant increases in VO_2max ($p<.001$), cardiac output ($p<.01$) and stroke volume ($p<.05$) were evident in both groups. Decreases in percent body fat ($p<.05$), HbAlc ($p<.05$) and LDL-C ($p<.01$) were evident in the diabetic group. The results of this study indicated that a program of aerobic circuit training is effective in improving VO_2max, metabolic control and lipid profiles in Type I adolescent diabetics. Furthermore, this study demonstrated that Type I adolescent diabetics may safely participate in aerobic circuit training, and that they exhibit training responses comparable to those observed in non-diabetic subjects.

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ANTHROPOMETRIC AND STRENGTH CHARACTERISTICS OF HIGH SCHOOL AGE FEMALES WITH PATELLOFEMORAL PAIN.

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The purposes of this study were to investigate the relationship of selected anthropometric and strength variables to the incidence of patellofemoral knee pain in high school age female athletes and to develop a predictive equation that would screen those who may be predisposed to this trauma. Forty-four female students, age 14 to 18 years, volunteered to participate in this study. Fifteen of the subjects were asymptomatic, fourteen had at least one knee affected by patellofemoral knee pain and fifteen served as a verification group for the predictive analysis. Anthropometric variables of age, height, weight, static quadriceps angle (Q-angle), and pelvic width were investigated along with maximum hamstring and quadricep strength as obtained from a Cybex isokinetic dynamometer. A predictive equation using discriminant analysis was also formulated using the aforementioned variables. The experimental setup consisted of a Cybex II dynamometer, goniometer, anthropometer, certified scale and meter stick. Standard protocol as documented in the Cybex Instruction Manual was utilized along with triple readings of height, weight, static Q-angle and pelvic width which were ultimately averaged. Differences of mean variable values were evaluated utilizing the Students *t* test at the 0.05 level. Discriminant analysis was used to create the predictive equation. Statistical analyses revealed that three anthropometric variable mean value differences were statistically significant in this study. Weight, height and pelvic width were all significantly larger in the symptomatic group. Discriminant analysis disclosed a percent predictability of 89% for the variables investigated. It was suggested that the significantly larger mean value for weight in the symptomatic group would lead physical educators, coaches and medical personnel to be aware not only of the symptoms of patellofemoral pain but also a probable cause for the pathology, weight. Furthermore, results from the discriminant analysis indicated that preventive measures may be taken through the use of an equation of anthropometric and strength variables that correctly predicted 89% of the subjects in this study.

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THE ENERGY COST OF A 20 MINUTE STEADY STATE CRITERION REFERENCED CARDIORESPIRATORY FITNESS TEST IN TEENAGE YOUTH.

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Most nationally used health-related behavior oriented youth fitness tests in the U.S. assess cardiorespiratory (CR) fitness with walk/jog/run tests which are criterion referenced and often require high anaerobic energy demand contributions. In one health-related behavior oriented youth fitness test, a 20 minute steady state criterion referenced jog test (consistent with American College of Sports Medicine adult CR health goals) was designed to require youths (grades 4-12) to maintain a sustained aerobic energy demand. We evaluated the energy cost of the 20 minute steady state jog in 15 (6 girls, 9 boys) students (mean age = 15.4 yrs.) to determine if the criterion reference standards were valid in relation to adult guidelines which indicate that intensities for CR fitness should fall between 50-85% of maximal oxygen consumption requirements. Each student (non-athletes who had trained for 8 weeks prior to evaluation) completed a 0% grade treadmill test at a submaximal speed, criterion speed and to volitional fatigue. Measured peak oxygen consumption ($\dot{V}O_2$ in ml·kg^{-1}·min^{-1}) values (means, standard deviations and independent t-tests results) were:

	5mph	%Max	Criterion Speed		%Max	Peak VO_2
Girls	30.7 (3.8)	74%	(6.6 mph)	38.2 (3.6)	92%	41.5 (6.3)
Boys	33.8 (3.8)	70%	(7.2 mph)	41.5 (5.0)	87%	47.9* (4.6)

* $p < .05$ (Girls vs. Boys)

It was found that the 20 minute steady state jog criterion reference requirements exceeded the intensity levels recommended by the ACSM. However, the 5 mph submaximal speed for both girls and boys elicted intensity levels consistent with ACSM sustained aerobic requirements. We conclude that the 20 minute steady state jog can be used as a valid measure of CR fitness (at 5 mph) in teenage youth and relates positively to desired adult health related CR behavior. (Funded by SWTSU)

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KNOWLEDGE ABOUT AIDS, SEXUAL PRACTICES AND HEALTH LOCUS OF CONTROL AMONG COLLEGE STUDENTS.

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The purpose of this investigation was to examine the relationship of students' sexual practices, health locus of control and knowledge about AIDS information. Students in various disciplines and years were recruited from general elective courses at a southern university. At the end of a class, students were informed about the study and asked to volunteer. 515 completed the three-part questionnaire consisting of a modified version of Walston and Walston's Multidimensional Health Locus of Control (MHLC) inventory, a 13-item knowledge test about AIDS, and background information. 506 of the respondents were at the undergraduate level and provided the data for these analyses. Most students were single (90%), female (70%) and white (90%), with more than half (63%) under 20 years of age. Although 44% were not sexually active during the preceding month, 73% (N=363) had experienced intercourse during the past year and 10% had experienced anal sex. 86% of the sexually actives were not married, and 62% were involved in monogamous relationships. More than half (68%) used birth control regularly but only 28% noted condoms as their method of choice. Use of intravenous drugs was less than 2%. 43% of all respondents had received prior AIDS instruction. The MHLC classified 207 students as internals, 149 as externals and 150 as influenced by others. Comparisons of health locus of control on sexual practices and AIDS knowledge failed to identify significant differences. Scores on the AIDS knowledge inventory ranged from 4 to 13 ($\bar{X}$= 9.8). Cronbach alpha established a reliability coefficient of 42.7 for the inventory. Knowledge scores were higher if the student was married ($\bar{X}$= 10.0), female ($\bar{X}$= 9.9 vs 9.6; p= .04), white ($\bar{X}$= 9.9), over the age of 22 years ($\bar{X}$= 10.4), had an internal orientation ($\bar{X}$= 9.9), prior AIDS instruction ($\bar{X}$= 10.1 vs 9.6; p= .003), and had not experienced anal sex ($\bar{X}$= 9.9 vs 9.2; p= .01). Results indicate that health locus of control did not affect sexual practices or AIDS knowledge. Students appear to be informed about AIDS, but knowledge has not encouraged preventive behaviors. These findings suggest that this group of students is engaging in risky behaviors. Educational efforts need to address ways of promoting preventive behaviors among sexually active students.

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ENHANCING SELF-PERCEPTIONS OF CHILDREN THROUGH THE USE OF A TASK-ORIENTED PHYSICAL EDUCATION PROGRAM. Sherry L. Newsham, International Institute for the Enhancement of Human Performance, 324 La Mesa, Encinitas, CA 92024.

Despite an abundance of research regarding the health benefits of physical fitness and the need for quality physical education programs, today's child is not meeting the current minimum standards for physical fitness. It has been theorized that focusing on an individual goal-oriented physical education program will promote feelings of competence in the athletic domain, thus increasing the likelihood of exercise adherence. In contrast, focusing on an ego-oriented physical education program, where social comparison is highly prevalent, is less likely to lead to enhanced perceptions of competence in the athletic domain among children. This study evaluated the effectiveness of a task-oriented physical education program on the self-perceptions of third, fourth, and fifth grade students. The program used was Fitness, Academics, and Self-esteem Training. FAST is a highly structured, goal-oriented physical fitness education/classroom program with a focus on aerobic activity. Students ran, jogged, or walked around a track for 40 minutes at the beginning of each school day at a comfortable pace with a de-emphasis on speed, thus reducing the social comparison process. The experiment utilized a nonequivalent control group design. The experimental group (N=81) consisted of the third, fourth, and fifth grade students who participated in FAST, while the control group (N=74) consisted of a third, a fourth, and a fifth grade class who participated in a traditional physical education program. Harter's Self-Perception Profile for Children was given at the beginning of the school year; posttests were given 12 weeks later. An analysis of variance of gain scores was used to analyze the data by group, grade, and gender. The experimental group displayed significant differences in gain scores in increased feelings of athletic competence, social acceptance, and scholastic competence (at the .05 level of confidence) when compared to the control group. There were no significant differences between groups on the physical appearance, behavioral conduct, or global self-worth subscales. Overall, the experimental group showed increased feelings of competence on all six subscales, while the control group displayed decreased feelings on four of the six subscales. This suggests that programs which focus on a task-involved orientation may lead to enhanced feelings of competence; however, programs which focus on an ego-involved orientation, where social comparison is prevalent, may lead to decreased feelings of competence.

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THE REQUIRED DANCE COMPONENT IN THE UNIVERSITY PHYSICAL EDUCATION PROGRAM; STUDENT PERCEPTIONS AND ATTITUDES.

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It has been suggested (Weeks, 1986; Kraus & Chapman, 1981) as problematical that physical education graduates who are often responsible for the delivery of dance experiences in school programs, may themselves lack commitment to dance. The work of Nielsen, Rutledge & Harris (1989) supported this contention, indicating that among students entering a university physical education program attitudes towards general and specific forms of dance lagged significantly behind attitudes towards physical activity in general. Whether such dance attitudes are reflected in the way students approach the inevitable required dance component of their programs remained unclear since presumably such requirements were well known to program applicants. The purposes of this study were to 1) assess the attitudes of first year university physical education students towards dance as a program requirement, 2) determine if gender differences exist for those attitudes. Students ($N = 265$) responded to questions concerning their comfort in, and support of, the dance component in their and other programs. They also indicated how confident they generally were when approaching new physical activities. Overall, results indicated that despite reporting a very confident approach to physical activity as typical, subjects were much more neutral concerning their perceived coordination in dance and the role of dance in school programs. There was, however, not a strong wish to avoid completing dance requirements. However, when Chi-square analysis was used to investigate gender differences, it was apparent that although males ($N = 141$) and females ($N = 124$) exhibited similarly confident approaches to learning new activities, all other items yielded differences. Males reported feeling uncoordinated while dancing more so than did females ($p < .001$), and were more adamant in their desire to avoid completing a dance course ($p < .001$) and their opposition to the inclusion of dance in all school programs ($p < .001$). These results, when considered in combination with the relative lack of dance experience among these students, dramatically illustrates the challenge faced by instructors of initial, required dance experiences in physical education programs. This is especially true with respect to constructive instruction of male students.

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THE EFFECTS OF TRAINING MODE ON CHILDREN"S COINCIDENCE TIMING ABILITY. Virginia G. Overdorf, William Paterson College; Beth Barnett, Manhattan College.

A study was conducted to evaluate which variable training method, random or blocked, would produce better performance for young children on a coincidence timing task. Of secondary interest was whether training mode would have a differential effect based on the gender of the child. Forty first and second graders participated in this study. Participation was voluntary and only permitted after obtaining parental permission. Children were trained one day on 4 blocks, 16 trials each, of either randomly occurring speeds (random variable) or blocked speeds (blocked variable).The trial speeds included in the training session were an equal number at 2mph,3mph,4mph,6mph. Order effects were controlled for in the blocked variable condition through counterbalancing. Within 48 hours, all children were tested on a random variable transfer task which included the faster speeds of 6mph, 8mph, 9mph, and 10mph. Two blocks of transfer trials, 16 trials each, were administered.

From the assessment of absolute error scores, it was determined that the type of training subjects received influenced their performance on the transfer task. Those trained on random variable were more accurate. However, these results were modified by an interaction of gender with training mode. Females trained on blocked variable were significantly less accurate than any other group. There was a similar pattern within constant error scores. Interestingly, analysis of the variable error scores indicated no main effect of training mode or gender, but a significant main effect of test blocks. The interaction between test blocks and training mode indicated that subjects trained on blocked variable became more inconsistent across blocks, while those trained on random variable decreased their variability within the second block of test trials. This finding was true for both male and female subjects. The results of the analysis of training mode are interpreted within an ecological validity framework. Furthermore, the findings regarding gender distinctions are discussed in terms of experential differences among young children.

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CHILDHOOD PLAY EXPERIENCES OF WOMEN IN TRADITIONAL AND NONTRADITIONAL PROFESSIONS.

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The purpose of the study was to determine the differences in childhood play and related socialization experiences of women in traditional and nontraditional professions. One hundred ten professional women in both traditional and nontraditional (including business) professions were compared on forms and complexity of childhood play experiences, play materials, playmates, types of parental encouragement, and on childhood socialization experiences. Based on a review of the literature, the researchers predicted that women in nontraditional professions would report different play and other childhood experiences than those of women in traditional professions. A survey questionnaire incorporating Janet Lever's (1978) hierarchical model of play complexity was administered to the subjects. Chi Squares and t-tests for differences between means revealed significant differences among subgroups on several independent variables. Professional business women had participated more in competitive sports as children, and (along with women in other nontraditional professions) reported more male playmates and fewer female playmates than women in traditional professions. Forms of parental encouragement also differed among professional women. Fathers emphasized competitiveness while mothers emphasized consideration and ladylike behaviors. Women in nontraditional professions received different forms of parental encouragement than women in traditional professions.

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LIPOPROTEIN PROFILES OF MALE AND FEMALE CIGARETTE SMOKERS AND NON-SMOKERS.

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The purpose of this study was to examine the lipoprotein profiles of male and female cigarette smokers and to compare them with a group of similarly aged male and female non-smokers. Thirteen male and 15 female volunteers who had smoked a minimum of 20 cigarettes per day for the past five years comprised the smoking group, while 7 males and 5 females who had never smoked formed the non-smoking group. Fasted blood samples were drawn from an antecubital vein and assayed for total cholesterol, triglycerides, high-density lipoprotein cholesterol (HDL-C), and subfractions HDL$_2$ and HDL$_3$. Total cholesterol and triglycerides were quantitatively assayed using enzymatic procedures while heparin-MnCl$_2$ and dextran sulfate were used as precipitating reagents for determination of HDL-C and subfractions, respectively. Data were analyzed using a 2 x 2 (Smoking Group x Sex) ANCOVA with age, body weight, and % body fat serving as covariates. *A priori* comparisons for mean differences revealed that concentrations of HDL-C were 16% lower ($P < 0.05$) for female smokers than for female non-smokers (46.3 ± 5.7 mg/dl vs. 55.4 ± 5.9 mg/dl), and 19% lower for male smokers than for male non-smokers (36.2 ± 6.2 mg/dl vs. 44.7 ± 5.9 mg/dl). Depressed HDL-C concentrations for smokers of both sexes appear related to decreases in the HDL$_2$ subfraction. For females, HDL$_2$ concentrations were 54% lower for smokers than for non-smokers (9.7 ± 3.6 mg/dl vs. 21.2 ± 6.3 mg/dl), while HDL$_2$ concentrations for males were 53% lower for smokers than for non-smokers (7.8 ± 3.2 mg/dl vs. 16.6 ± 2.6 mg/dl). No significant differences in total cholesterol, LDL-C, or triglycerides were observed between smokers and non-smokers of either sex. These results suggest that smoking is associated with unfavorable changes in the lipoprotein profile, particularly with regard to HDL-C and HDL$_2$, the reputed anti-atherogenic subfraction. Such changes place smokers of both sexes at greater risk for developing coronary heart disease.

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PERCEIVED PHYSICAL ATTRACTIVENESS AND SUBSTANCE USE AMONG ADOLESCENTS.

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An important component of self-image and self-esteem is the perception and evaluation that one maintains about their physical appearance. Adolescence, in particular, is a period of increased concern and sensitivity about one's body and its appearance. Adolescence is also a time of increased vulnerability to experimentation and use of a variety of psychoactive substances. The purpose of this study was to explore the relationship between perceived physical attractiveness and the use of a variety of psychoactive substances among 600 male and 600 female adolescents. During regularly scheduled high school health classes, the sample members anonymously completed a substance use inventory and rated their physical attractiveness on a scale ranging from 1 (extremely unattractive) to 9 (extremely attractive). Students were grouped into the following categories based upon their responses to the scale: unattractive, average attractiveness, and attractive. In addition, they rated their bodies as being too fat, just right, or too thin. Two-way analysis of variance tests (perceived attractiveness X perceived body composition) for both males and females were computed in order to test for group differences in the use of several psychoactive substances. Perceived physical attractiveness did not appear to be related to substance use among males. However, unattractive females, particularly those who considered themselves to be too thin were significantly more likely to use illicit substances (cocaine, marijuana, and hallucinogens) than attractive or average looking girls. While these results are difficult to interpret, they provide additional insight into why certain adolescent girls may be at high-risk for substance abuse problems. This information can assist health educators in their efforts in dealing with youth substance abuse problems in school and community settings.

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OBSERVATIONAL ABILITIES OF KINESIOLOGY STUDENTS AND ELEMENTARY EDUCATION STUDENTS IN THE ASSESSMENT OF HOPPING: PRACTICAL IMPLICATIONS. Mary A. Painter, California State University, Northridge.

Elementary school personnel responsible for the physical education of children should be able to observe and analyze motor skill behavior. Intratask developmental motor sequences provide a potential observational system by which the assessment of developing motor patterns can be facilitated. This research project was designed to investigate the generalizability with which both upper-division, undergraduate kinesiology students and upper-division, undergraduate elementary education students can rate the arm action, leg action, and total-body action of children's hopping performances according to pre-longitudinally validated developmental sequences. Four observational groups were formed with five students in each group: (a) kinesiology students using a total-body developmental sequence; (b) kinesiology students using arm and leg developmental sequences; (c) elementary education students using a total-body developmental sequence; and (d) elementary education students using arm and leg developmental sequences. Five videotaped trials of twenty boys and girls between 3.5 and 8.5 years of age were rated by the observers both before and after receiving training in using an assigned developmental sequence to assess children's hopping performances. A GENeralized Analysis Of VAriance (GENOVA) was conducted on the data. The effects of training the observers to use the developmental sequences as assessment criteria and the minimal conditions of measurement required to achieve acceptable levels (.80) of generalizability were examined. The findings indicate a trend for the reduction of measurement error in the assessment of hopping when both kinesiology students and elementary education students are trained in the use of developmental sequences as assessment instruments. Despite the reduction of measurement error as a result of training, post-training analyses suggest that for three of the observational designs in the study a minimum of two observers viewing two to four trials are necessary in order to reach acceptable levels of generalizability. Several concerns exist with regard to the practical implications of this study. These include(a) the number of observers generally available in an assessment setting,(b) the time frame available for making decisions about a motor performance, and(c) the content of coursework in programs of study for kinesiology, physical education, and elementary education careers.

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A FIVE YEAR LONGITUDINAL STUDY OF THE FLEXIBILITY OF SCHOOL CHILDREN.

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Previous research has shown that skill-related physical fitness measures have a significant hereditary component. Long jump, sprint runs, and agility runs have been shown to be test items that discriminate fitness award winners from non-winners, suggesting that even children who try hard may find it difficult to change performance on these measures. Of the health-related fitness measures, the sit and reach discriminates children who achieve fitness awards from those not achieving them, more than any other measure. The purpose of this study was to evaluate children to see if flexibility performance changed over a period of five years. Were children who achieved high flexibility scores in the first grade among the best in this test by the end of the fifth grade? From a pool of 251 children in three elementary schools, scores for 65 subjects were obtained for fall and spring testing over a five year period. Mean values for girls were better than those for boys over the five years of the study with girls increasing in the sit and reach performance while boys decreased slightly. Intercorrelation coefficients for the 10 tests were consistently in the .60 to .70 range. The correlation for Test 1 to Test 10 (first grade fall semester to fifth grade spring semester) was .73 for boys, .70 for girls, and .73 for boys and girls combined. No single correlation was higher than that between Test 1 and Test 10 scores for either sex or for the groups combined. Multiple regression analysis revealed that the Test 10 scores were best predicted by the first grade and most recent test scores. Clearly those children who score well on the sit and reach test when they enter school also score well on the test by the end of the fifth grade. This finding, combined with the data showing sit and reach scores limit success in achieving fitness test awards, suggests that the hereditary component may be a key factor for achieving success in this test.

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A FASCINATION WITH *FORM*: THE SCIENTIFIC AND CULTURAL CONTEXT OF ANTHROPOMETRY AND BODY SHAPE, 1865-1919.

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In a thoughtful paper entitled "Skeletons in the Closet" (*Representations*, Spring 1986), Londa Schiebinger has argued that new conceptions in anatony in the 16th century profoundly influenced views of women's physical and moral nature. By the mid-1880s, the use of anatomical *form* to define every aspect of "male" and "female" had reached a veritable craze in English-speaking and several European countries. Assumptions derived from anatomical form and idealized constructions conditioned beliefs about health, intellectual capacity, moral rectitude, and much more. Women, it was maintained, were more prone to debilitating illnesses, more childlike than men, and far less able to withstand intellectual rigors. When women began to enter higher education in increasing numbers in the 1870s, it was deemed necessary to strike a balance between how much (and what type) exercise and activity was needed to prevent physical and/or mental break-down and how much might "unsex" them. The intense interest in anthropometry, which reached its height in the last decades of the 19th century, drew upon and contributed to the Victorian interest in bodily form. When in 1893 the American Statistical Association published E.M. Hartwell's "Preliminary Report of Anthropometry," gymnasium directors (male and female) were deeply involved in recording vast amounts of data. Anthroplogist Franz Boas measured both indigenous populations and tens of thousands of immigrants. Physicians like William T. Porter gathered quantities of data from school-aged children. While much of the interest in measuring the human body was a consequence of advances in the biological sciences and greater interest in statistical methods applied to investigations, it was also prompted by cultural beliefs about racial superiority and gender and class distinctions. Statues of the "Typical American" (male and female), constructed from "median measurements" of thousands of students, were displayed at the 1893 Chicago World's Fair. (The "typical" woman received particular discussion in newspapers across the nation.) The statue of Apollo Belvedere and the athlete's body were frequently offered as ideals for all men to seek to attain. This study analyzes the scientific and social contexts in which these matters held sway. It draws from a wide range of biomedical and popular literature, archival and material culture collections, and anthropometric charts upon which gymnasium directors recorded their data, as well as photographs and representational drawings.

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ADHERENCE AND BODY COMPOSITION CHANGES ASSOCIATED WITH A ONE-YEAR WALKING AND EXERCISE PROGRAM.

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The purpose of this study was to examine the effects of adherence to a one-year exercise and dietary program on body weight, % fat (H_2O), and waist-to-hip ratio (W/H). Fourteen obese ($\bar{X}$ % Fat = 35%) male subjects ($\bar{X}$ age = 46.5 yrs.) participated in a one-year exercise (walking) and dietary (1200 Kcal) program. Phases I and III consisted of 8 weekly controlled sessions of education, behavior modification, exercise, and diet. Phases II and IV consisted of 4 monthly motivational sessions while subjects continued on a self-directed weight loss program. Exercise consisted of a walking program that progressively increased exercise to 60 min/day, 7 days/wk. Diet consisted of 1200 Kcal/day using the Dietary Exchange List. A comparison of measured values is presented below. Significance was determined using analysis of variance with repeated measures.

	WT	FAT		% Adherence		
	(lbs)	(%)	W/H	Ex.	Diet	Total
Initial	240.0	34.8	.92	-----	-----	-----
	±31.0	±5.0	±.086	-----	-----	-----
Phase I	231.3*	33.2*	.91	66.0	72.0	70.0
	±28.0	±4.8	±.066	±20.0	±18	±16
Phase II	235.0	32.8	.91	44.0	42.0	42.0
	±30.0	±5.3	±.070	±20.0	±16	±18
Phase III	228.2*	31.5*	.90	56.0	52.0	54.0
	±25.6	±4.5	±.062	±20.0	±18	±18
Phase IV	238.0	34.3	.89	40.0	34.0	38.0
	±29.2	±5.0	±.088	±20	±18	±18

*$P < .05$

These results show significant changes ($P < .05$) in the controlled phases (I and II) when subjects attended weekly sessions and adherence was greatest. Negative or negligible changes resulted in (Phases II and IV) when subjects were self-directed and adherence decreased. Conclusions: These findings show improved adherence with weekly group sessions compared to self-directed intervention. Adherence rates of greater than 50% are necessary for positive changes in body weight and body composition.

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EMERGENT AND INFORMAL LEADERSHIP: A PRELIMINARY STUDY.

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It has been suggested that to primarily focus on the behavior of the leader rather than on follower behavior is a simplification of reality which does not facilitate understanding the role of leadership within a group structure (Meindl, Ehrlich & Dukerich, 1985). The study of leadership in sport has predominantly focused on the role of the coach as a leader with limited study of the development of leaders within team members. In the formal structure of an athletic team, where in most cases the coach has been imposed as a leader, there is potential for informal groups to evolve and informal leadership roles emerge. The work reported here is preliminary to a planned study of leadership within intact teams in various sports. To establish initial framework for the study, 22 coaches representing four team sports, responded to a questionnaire and participated in a follow-up interview to probe various concepts of leadership that they observed on teams they had coached. Since prior research had suggested that coaches may not be good predictors of athlete leadership roles, 42 athletes representing three team sports also responded to a questionnaire concerning their beliefs about peer leadership roles. Conclusions drawn from this preliminary work suggest: (a) coaches are sometimes not aware of the leadership role a player has on the team; (b) appointed or elected captains may not be the significant leaders on a team; (c) responses of both coaches and players suggest that more than one leader or leadership role exists within a given team; (d) initial work has identified seven types of leaders that have been labeled as the "big play", "spiritual", "party time", "goal oriented", "complaint", "strategy" and " comic" leaders; (e) the big play leader appears to be the most obvious and believed by most coaches and players to be the most important; (f) while coaches state the importance of developing leadership in their players, players report limited opportunities are provided to develop leadership skills in practice or competition settings and suggest that informal leadership may develop away from the competitive or practice environment. Statistical data supporting the above conclusions and a discussion of the emergence of informal leadership within the athletic team structure will be presented.

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THE EFFECT OF STUDENT TEACHING ON INSTRUCTIONAL STYLE PREFERENCE OF PRESERVICE EDUCATION MAJORS.

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The purpose of this study was to examine the effects of the student teaching experience on the instructional preferences of education majors. Instructional style is defined as the teacher's personal behavior and media used to transmit to or receive data from the learner. An understanding of how the student teaching experience affects students' instructional style ought to influence the various processes used in the training of teachers. The subjects were 215 education student teachers with various program concentrations including secondary (n=75), elementary (n=75), physical education (n=35), art (n=15), and music (n=15). A quasi experimental pretest-posttest design was used. The Canfield Instructional Inventory was administered to all subjects to determine their instructional style. The inventory identifies three major categories under which instructors prefer to teach; Conditions, Mode, and Influence. Validity and reliability estimates for the inventory range from .64 to .95 and .81 to .96 respectively. All subjects took the inventory prior to student teaching as well as after its completion. They were not aware of their style results until after the conclusion of the study. The effects of the student teaching experience on the subjects' instructional style were analyzed by the multivariate analysis of variance statistical procedure. The results indicated that student teachers as a group significantly altered their instructional preferences after the student teaching experience in the Conditions and Influence categories at the $p>.05$ level of significance. After student teaching, subjects indicated higher a preference for Authority and Detail but indicated less preference for Peer Affiliation and felt less Responsible for student learning. The results also indicated both pre-student and post-student teaching instructional preference differences existed between the various education program concentration groups. These results indicate that the student teaching experience does significantly impact on student teachers' instructional preferences. In particular, it seems to produce a shift toward a more direct, teacher-centered style of instruction. Teacher preparation programs should provide more "realistic" teaching experiences for students prior to the "culminating practicum" in order to more fully develop students instructional style.

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MOTOR SKILL DIAGNOSIS: DIAGNOSTIC PROCESSES OF EXPERT AND NOVICE COACHES. Victor E. D. Pinheiro, The University of Akron.

This study determined empirical differences in the cognitive processes used by expert (n=5) and novice (n=5) track and field coaches as they diagnosed the videotaped shot put (O'Brien style) of an advanced and a beginner shot putter. Retrospective and think aloud reports were audiotaped to capture the diagnostic thinking processes. Data were obtained from verbatim protocols which furnished information about cue acquisition, cue interpretation, and diagnostic decisions. A 35-item written test assessed the coaches' knowledge of the event. Data were subjected to a two-way analysis of variance for repeated measures. The following significant differences were revealed: (1) experts acquired more cues than novices; and (2) experts made more cue interpretations and diagnostic decisions than novices. The knowledge base of the experts was superior to that of the novices. The supplementary analysis indicated that: (1) diagnostic accuracy of experts was better than novices; (2) experts missed fewer errors as compared to the novices; (3) experts needed fewer trials than the novices to pick out additional errors; and (4) experts' predictions were much closer to the actual distance achieved by the putters. Overall results provide a profile that suggests observed experts possessed superior knowledge and experience in their field. The results also identified the problem areas of diagnosis of the novices.

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WHAT PROSPECTIVE TEACHERS BELIEVE ABOUT THE TECHNICAL SKILLS OF TEACHING.

Judith Placek, Sarah Doolittle, Patt Dodds, Tom Ratliffe, University of Massachusetts.

Teacher socialization research has demonstrated how powerfully background experiences influence recruits' responses to their professional education. Yet, very little is known about prospective physical educators' knowledge, beliefs and attitudes about physical education teaching. The purpose of this paper is to report beliefs about the technical skills of teaching held by a group of 21 sophomore recruits who were interviewed at the beginning of their professional coursework. The interview consisted of open-ended questions and vignettes which elicited narrative descriptions requiring these recruits to project themselves into the teacher role. The recruits were asked to describe as fully as possible a typical day in the life of a teacher, how they would conduct a particular activity unit, how they would evaluate students and their teaching, and what they see as relevant characteristics of excellent and poor physical educators and physical education classes. Probes were used to draw out details about what recruits believed the tasks of teaching were and to identify sources of their beliefs. Content analysis of interview transcripts was used to draw common themes across participants (and unique themes for each individual). Results indicate that these recruits visualize teacher roles only in general terms, and that teaching techniques they identify are those most accessible to them during their "apprenticeship of observation" (Lortie, 1975). For example, they have only vague notions of teacher activities not easily observed (e.g., planning). Their knowledge appears to be based on their experiences as students in physical education classes and as athletes, as both teachers and coaches were cited as sources of information. They display superficial understanding of the technical language frequently used to describe teaching skills (e.g., feedback, curriculum, objectives, class management), but appear to have no elaborated understandings beyond these global descriptors. Much of their knowledge and understanding is inconsistent with effective teaching research and generally accepted professional practice of experienced teachers in the field.

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"PHYSICAL BEST" IN THE CORPORATE SETTING: A FAMILY ORIENTED APPROACH.

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At the Westinghouse Electronic Assembly Plant, a 5 week "Physical Best" fitness program was organized for employees' children. It was the purpose of this program to provide a service to employees and their families and additionally to investigate whether"Physical Best" would be a successful program in this type of setting. Nine children enrolled for the 5 weeks and were subjected to pre (T1) and post (T2) testing for skinfold thickness, sit & reach, sit-ups, pull-ups and 9-minute walk/run. The subjects met 2 times/week for supervised exercise sessions, which included a mini-educational lecture, exercise and learning center activities. In addition "Physical Best" contracts were developed for each subject. Each contract required 3additional days of fitness activities during which family members supervised as well as, participated with subjects. Testing results are presented below.

VARIABLE	T1	T2	T-VALUE	P-VALUE
Skinfold (mm)	22.62	21.04	-1.662	0.068
Sit & Reach (cm)	33.11	32.11	-0.72	0.247
Sit-ups	20.78	25.11	3.20	0.006*
Pull-ups	0.0	1.56	3.09	0.007*
9-min Run (yds)	1134	1290	3.41	0.005*

*indicates significant difference at $p<0.05$

Skinfold thickness decrease was not statistically significant, but this is an acceptable finding considering the length of the program. Sit & Reach scores showed a slight decrease (non-significant), although the results remained in the optimal level of the norms for these subjects. However, all other variables increased significantly. Therefore, it is concluded that "Physical Best" showed successful results when utilized in a corporate setting and may be an excellent opportunity to promote fitness in corporate settings through family-oriented programming.

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A QUALITATIVE STUDY OF PRESERVICE TEACHERS' OBSERVATIONS IN UNGUIDED FIELD EXPERIENCES IN PHYSICAL EDUCATION.

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The purpose of this study was to examine the observations of preservice physical education teachers in unguided field experiences through the use of qualitative research techniques. The methodologies employed were participant observation and interviewing. Data were also collected by having the preservice teachers maintain daily journals of their observations. The seven volunteer subjects were senior physical education majors. The observation period was six hours of observation each week, for six weeks. The researcher was also a participant observer. Data were analyzed inductively, and working hypotheses developed as data were collected. Emergent patterns or categories which were prevalent in the data were investigated as they became evident. Validity of the observations was established through triangulation of multiple data sources, data checks, and through the application of thick description in reporting data. The focus of the preinterns' observations varied. However, the content of their observations was fairly consistent. The observations revealed that, generally, the preinterns did not provide bases for their subjective observations; they often focused on ALT, lesson organization, teaching methods, and student characteristics; they made simple, and a wide variety of complex observations; they made comments about student skill performances but were not specific in those observations; they virtually ignored individual student performance and the mechanics of the students' skill performances; and also seemed to disregard lesson purpose, student social interactions, teacher characteristics, the environment, and the school organization and administration. The study revealed that the preinterns' observations did reflect some aspects of their training, however, other parts were neglected. The preinterns' past experiences, university training, and interaction with inservice teachers were strong influences on their observations. Their observations contained a variety of complex observations, but they were not representative of mature observers.

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THE EFFECT OF A SYSTEMATIC SUPERVISION MODEL ON SELECTED TEACHER BEHAVIORS OF PREINTERNS IN PHYSICAL EDUCATION.

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The purpose of this study was to test the effect of a systematic supervision model on selected teaching behaviors of physical education majors engaged in a laboratory school preinternship experience. Subjects in the group were 18 seniors enrolled in a secondary physical education methods classed. These subjects were randomly assigned to a treatment group ($n=9$) and a control group ($n=9$). Subjects in the treatment group participated in an intervention (five 90-minute sessions) designed to reinforce selected components of planning for maximum learning. Activities included in the classwork were the study of theory, observation of demonstration lessons, lecture and discussion, group and individual planning activities, practice with structured planning forms, and use of systematic observation instruments. Subjects in the control group participated in activities of the same duration, but studied specific sport skills (team handball) unrelated to the dependent measure. Following the intervention, subjects in both groups participated in practice teaching experiences in a laboratory school setting. Each subject taught two badminton lessons (average duration = 25 minutes) to students in grades 7-10. Lessons were videotaped for subsequent analysis of academic learning time in physical education (ALT-PE) and teacher augmented feedback behavior. Mann-Whitney U statistics computed for comparisons of ALT-PE variables revealed significant ($U=19$, $p<.05$) differences for only motor appropriate behavior ($\overline{X}$ treatment = 32.5%, $\overline{X}$ control = 23.8%). Since motor appropriate student behavior is indicative of academic learning time, teachers in the treatment group were more effective in this criterion. ANOVA computed for the comparison of feedback patterns revealed significant main effects for valence (positive vs. corrective) ($F=54.7$, $p<.001$) and precision (general vs. specific)($F=78.7$, $p<.001$). Subjects in the treatment group gave more corrective feedback statements totaled over two classes ($\overline{X} = 10.9$) than those in the control group ($\overline{X}=7.0$). Subjects in the treatment group also gave more specific feedback statements totaled over two classes ($\overline{X}=8.7$) than the control group ($\overline{X}=5.3$). Differences in specificity resulted from a significant interaction ($F=4.90$, $p<.05$) of corrective/specific and treatment ($\overline{X}$ treatment = 7.7, $\overline{X}$ control = 4.6). While the treatment seemed to increase specificity of feedback provided, additional emphasis is needed to encourage teachers to provide positive/specific feedback. Collectively, these findings provide support for the use of a systematic supervision model in strengthening the impact of a preinternship program.

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PURPOSES OF PHYSICAL EDUCATION AS EXPRESSED BY PROSPECTIVE PHYSICAL EDUCATION MAJORS.

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Knowledge about the perceptions and beliefs of physical education majors can help educators plan and conduct programs that more closely match their students' needs. Physical education majors in the initial stages of their undergraduate programs were asked about the purposes of physical education as part of a large-scale questionnaire study of teacher socialization. After pilot testing and revisions, the questionnaire was completed by 1131 respondents from 26 colleges and universities purposely sampled from the six AAHPERD districts. These majors answered open-ended questions about the purposes they believed were held for the physical education programs that they had participated in the past and the purposes they presently hold for physical education. Coding categories and .90 reliability between coders were established prior to coding and reliability was rechecked and maintained at .85 throughout. Results revealed large differences between the stated purposes for elementary and secondary physical education. Looking back, 27% believed that their elementary physical education was to develop motor skill, 15% believed that it was to have fun, and 11% mentioned giving students a break from the classroom. For currently held purposes of elementary school, only 8% mentioned fun, 2% to give a break, while developing motor skill was mentioned 33% of the time. At the secondary level, these majors indicated few differences between purposes of the programs they attended and their preferred purposes now. While 20% mentioned developing motor skill and 13% indicated fitness, 22% referred only to content by listing specific activities or team sports. The physical education majors sampled in this study reveal a wide variety of beliefs about the purposes of physical education, and the beliefs they hold for secondary physical education closely reflect their own experiences.

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CONSTRAINTS ON LEISURE ACTIVITY FOR AT-RISK INNER CITY YOUTH

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The purpose of this study was to determine the constraints on leisure activity for at-risk inner city youth. The types of activities which were most constrained, constraining factors and the significance of gender and race/ethnicity differences were examined.

Part of a larger commissioned study, face-to-face tape recorded interviews were administered to 228 unemployed Black and Hispanic youth between the ages of 16-25. Participants were located on the west and south sides of Chicago in housing developments, community centers, neighborhood parks and local "hang outs." Survey data including demographic, behavioral and attitudinal information were collected. Open-ended questions regarding leisure were utilized, such as: "Are there any things you would like to do that you can't now?" and "Are there any things you would like to do more than you do now?" Descriptive statistics and Chi-square analysis were used for the investigation.

The first choice of 33.9% was to "get a job" (Blacks 33.3%, Hispanics 40.3%, males 38.0%, females 31.3%) and of 16.7% to "go back to school" (Blacks 14.3%, Hispanics 31.9%, males 17.6%, females 24.1%). Another 10% added getting a job as their second choice and another 8% wanted to go back to school. That indicated that 90% changed the orientation of the questions from leisure to work and school. There seemed little doubt that such desires were foremost in the minds of the unemployed young men and women. When they referred to nonwork activities, the most common response was travel, 14.5%, with cost being the primary constraining factor (Blacks 14.1%, Hispanics 21.7%, males 17.0%, females 18.1%) and lack of facilities a constraining factor for sports. About 2% or less mentioned particular sports, sexual activity, and a variety of other activities. In order, the activities that were no longer done were: baseball, basketball, outdoor activity, other sports, exercise, crafts, football, and travel.

From this analysis, it appeared that constraining factors differed according to the kind of activity. What was different for these unemployed young men and women was the lack of mention of the constraint of time. Not having enough time is the most common constraint for others in society. Minimizing constraints whenever possible is crucial for leisure educators and providers. Special attention must be given in the schools and parks to helping at-risk youth create leisure opportunities and make satisfying leisure choices.

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An International Public Health Issue: Domestic Violence Against Women. Perceptions and Contrasts of International Students on the Causes of Violence.

Many countries representing various cultures have begun to recognize that the family can be a potentially dangerous institution. The Surgeon General's Report on Violence and Public Health reported that in some Third World countries more citizens are dying prematurely due to violence than those dying from infectious diseases. The United Nations and the World Health Organization repeatedly addressed the issues of domestic violence and urged for prevention. The purpose of this study was to assess and contrast international students' perceptions on the causes of domestic violence in their home countries. The sample of 120 students was obtained from 890 international students enrolled during the Fall semester of 1988 at the University of Tennessee by quota sampling according to country categories defined by the World Bank: low- (I), lower middle- (II), upper middle- (III) and industrial market (IV) countries. Instrumentation consisted of a survey instrument designed by the researcher to measure the causes of woman abuse in the respondents home countries. The international students completed the questionnaire resulting in the computation of percentages. Further, the mean rank for each country category was computed and then compared. Results were analyzed using Kruskal-Wallis one way anova. The findings of this study led to the following conclusions regarding the international students sampled in this investigation. Respondents from low- (I), lower-middle (II) and upper-middle (III) income countries contributed abuse to the low economic status in the family, while students from industrialized market (IV) countries believed that abuse is caused by psychological problems and learned behavior.

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A LONGITUDINAL STUDY ON THE EFFECTS OF EXERCISE ON MOTOR PERFORMANCE OF PREVIOUSLY SEDENTARY OLDER WOMEN.

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This study evaluated the effects of a 3-year exercise program on the motor performance of previously sedentary older women, ages 57-85. Most related prior research on exercise and aging has been cross-sectional in nature and, thereby, inconclusive regarding a causal interpretation of the role of exercise. The exercise Ss in this study consisted of 31 female volunteers who were first-time enrollees in exercise classes taught at a local retirement complex. A matched control group of 17 volunteers was taken from non-exercise hobby classes. During the 3-year study, ten subjects were lost from the exercise classes and four from the control group, resulting in final n's of 21 and 13, respectively. The primary variables of interest were simple and choice reaction time (selected because of their value in assessing speed of cognitive processing), and balance, flexibility, and grip strength (selected because of their role in safe and efficient everyday functioning for older adults). The exercise subjects participated three times a week for three years in activity classes taught by trained exercise physiologists. The classes, designed to meet the American College of Sports Medicine Guidelines, included 5-10 min of warm-up activities, 20-25 min of low impact aerobic activities at an intensity level of 60-70% maximum heart rate, 20-25 min of general calisthenics, and 5-10 min of relaxation and cool-down activities. According to attendance records kept by the instructors, the average compliance was approximately 80%. Analysis of variance results indicated that performance was significantly improved on all experimental variables by the end of the first year ($p < .05$), and was maintained throughout the 3-year period on all measures except balance. The exercise vs control group comparisons revealed significant interactions between treatment and performance ($p < .05$) on all variables except grip strength. Generally, scores of the exercise subjects improved over the 3-year period, while scores of the control subjects declined. It was concluded that exercise is an effective intervention with respect to reversing or at least slowing age-related declines in motor performance as well as in speed of cognitive processing, as reflected by improved reaction time performance.

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A WEIGHT TRAINING PROGRAM FOR ADULTS WITH MENTAL RETARDATION.

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Very low levels of muscular strength and endurance have been reported in adults with mental retardation. The purpose of this study was to determine if a 10-week weight training program could improve the muscular strength levels in a group of mentally retarded adults (IQ 40-70). Twenty-four adults (13 females & 11 males, ages 23-49 years) were recruited from two group homes to participate in this study. The subjects were randomly assigned to a control (N=12) or experimental (N=12) group. One repetition maximum (1RM) on seven Nautilus machines was completed on each subject over a period of three testing sessions. Reliability data for both groups was high (>.98). The experimental group completed 15-18 one hour weight training sessions, directed by a graduate assistant and one staff member from the group home where the subjects resided. The data were analyzed by a multivariate analysis of covariance using the SPSS-PC+ statistical package. The MANCOVA analysis revealed a significant overall effect (F=3.23, df=64,29.56; p=.000). Subsequent univariate MANCOVA analyses were performed on the data to isolate which dependent measures were significantly different between the groups. Results showed that the experimental group performed significantly better than the control group on five of the seven dependent measures (shoulder abduction, pull over, pec deck, biceps curl, and triceps extension), employing the .05 level as the criterion for significance. Significance was approached on one of the two remaining dependent measures (leg curl, p=.070). Leg extension was the only measure where the experimental group did not show a significant improvement over the control group. Inspection of the data revealed that while the experimental group made a relatively large pre/post mean gain on this measure, the amount of variance also increased. Since the majority of vocational opportunities available to persons with mental retardation require manual labor (e.g., washing floors, cleaning, lifting and packing boxes), maintaining an adequate level of strength may enhance this group's productivity and job retention. In addition, participating in a weight training program in a community-based fitness center such as a YMCA, can be an important vehicle for enhancing social integration among persons with mental retardation.

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THE EFFECTS OF TWO CARBOHYDRATE DIETS, CONSUMED DURING SWIM TRAINING, ON THE LACTATE PROFILE.

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Investigators have shown that the workload which elicits a blood lactate contration of 4 mmole/l is optimal for training both the aerobic and anerobic energy systems. A Lactate Profile (LP) is the regression line determined by workload and the concentration of blood lactate produced at each workload. Scientists and coaches utilize the LP as an instrument to help discribe training intensities, specifically the 4 mmole level, for their athletes. However, the production of lactate is affected by the consumption of dietary carbohydrate (CHO) with higher lactate concentrations at a given workload when subjects consume higher carbohydrate diets. Therefore, the purpose of this study was to determine the affect of a 43% and an 80% CHO diet on the regression line (slope) of a LP, and on the workload (swimming velocity) which elicits a 4 mmole/l concentration of blood lactate. Fourteen Division I male collegiate swimmers were subjects in a crossover study in which an equal number of subjects were assigned to each diet for 9 days. This treatment phase was followed by a 5 day washout period in which swimmers returned to their self-selected diet. Another treatment phase followed with subjects reversing diets for another 9 days. The training regimen was exactly the same during both dietary treatments with LPs determined prior to and following the first and last training day, respectively, of each dietary phase. Lactate Profiles were determined by the subjects each swimming three progressively faster 200 yd front crawl swims. Blood was taken after each swim for determination of lactate concentration. The slope of the LP and the four mmole/l swimming velocity did not significantly change during the training period when the subjects consumed the 80% CHO diet, however, slope and the 4 mmole/l swimming velocity changed ($p<0.05$) when the subjects consumed the 43% CHO diet. Mean (±SE) slopes for before and after training, respectively, were 1.4 (±0.0) and 1.1 (±0.1) for the 43% CHO diet, and 1.5 (±0.0) and 1.5 (±0.2) for the 83% CHO diet. Swimming velocity at which 4mmole/l of blood lactate occurred for before and after training, respectively, was 1.5 (±0.01) and 1.61 (±0.01) yds/s for the 43% diet, and 1.56 (±0.01) and 1.56 (±0.01) yds/s for the 80% CHO diet. The results of the study indicate that the amount of dietary CHO significantly affects the slope of the LP and subsequently the reliability of this instrument for prescribing training.

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THE RELATIONSHIP BETWEEN REGIONAL ADIPOSITY AND HYPERTENSION. M.A. Roscoe, J.E. Donnelly, and J. M. Jakicic, Human Performance Lab, Kearney State College, Kearney, NE 68849.

Body fat distribution has been studied regarding blood lipid risk factors; however, little information is available regarding body fat distribution and blood pressure. The purpose of this study was to compare total body fat and regional adiposity to systolic and diastolic blood pressure. 235 male law enforcement officers (age=36.8±8.2 yrs.;body fat=24.5±6.8%) were evaluated for body composition and fat distribution. Total body fat was measured by hydrostatic weighing with residual volume determined in duplicate. Regional adiposity was measured with skinfolds (SF) and circumferences (CIR) obtained in duplicate and triplicate. Circumferences measurements for upper arm (UA) and forearm (FA) were measured at the largest girth on the right side of the body. Additional measurements were taken at the abdomen above (AA=1 inch above umbilicus), umbilicus (UMB), hip (H=iliac crest), and gluteal (GL=largest girth). Skinfolds were measured on the right side of the body for bicep (BI), tricep (TRI), subscapula (SUB=inferior angle), thoracic (TH=midaxillary line), suprailiac (SI=iliac crest), umbilicus (UMB1), and thigh (THI). Blood pressure were obtained with the subjects sitting quietly for 5-7 minutes. Average systolic (SBP) and diastolic (DBP) pressures were recorded from duplicate measures. A Pearson correlation coefficient was used for data analysis. A significant relationship was found between SBP and all skinfold measurements ($r=0.23-0.25;p<.01$) except SI, UMB, and THI (ns). A significant relationship was found between all circumference measurements and SBP ($r=0.30-0.35;p<.01$). No significant relationship was found between DBP and the variables tested. The results of this study seem to indicate that SBP is influenced by regional adiposity where DBP is not.

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EFFECTS OF A COGNITIVE-BEHAVIORAL INSTRUCTIONAL SELF-TALK TRAINING PROGRAM UPON A PERCEPTUAL MOTOR TASK. Tova R. Rubin, North Carolina A&T State University.

The purpose of this study was to determine the effect of an instructional self-talk training program, consisting of six sessions, overa three week period of time, upon performance of a perceptual motor task. The subjects for the study (n=36) were volunteers, recruited from five introductory level biology courses taught at the Community College of Philadelphia. The subjects were randomly assigned to one of three subject groups; experimental (n=12), practice (n=12), or control (n=12), after attending a pre-test procedure. The pre-test procedure consisted of completion of a demographic, sport participation, and video -game participation inventory, the TAIS, and audio taped three video-game performance of the Apple 2e Choplifter.

The experimental group's instructional self-talk training consisted of a six session program including an educational phase, a skill acquisition phase, and a practice phase. The practice group's program consisted of six sessions of video-game practice. The control group participated in only the pre and post-test conditions. The post-test included the completion of the TAIS and a scored three game video performance, which was audio taped.

The data were statistically analyzed utilizing an ANOVA on the video-game performance measure; the Quade Kruskal-Wallis on the overt instructional measure; and nonparametric statistical methods on the demographic variables of age, sex, educational level, sport participation and attentional style.

Statistical significance was demonstrated by the experimental group on the perceptual motor task measure and the overt instructional measure, both beyond the .001 level. No statistically significant differences in performance were noted on the demographic variables.

Within the limitations of this study, it was concluded that: (a) the utilization of specific instructional self-talk training procedure is effective in contributing to increased effective performance of a perceptual motor task and (b) when overt instructional self-talk is utilized during the performance of a perceptual motor task there is an increase in effective performance.

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THE RELATIONSHIP BETWEEN CHILDREN'S PERCEIVED AND ACTUAL MOTOR SKILL COMPETENCE.

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Many investigators agree that perceived competence appears to be directly linked to achievement motivation (Bukowski & Moore, 1980; Harter, 1978; Nicholls, 1976, 1978, 1984; Roberts, 1975; Roberts & Kleiber, & Duda 1981; Roberts & Pascuzzi, 1979; Spink & Roberts, 1980; Weiner, 1985). More specifically, many studies in the motor and sport area have shown that perceived competence is important in determining participant motivation in young athletes (Feltz & Petlichkoff, 1983; Roberts, Kleiber, & Duda, 1981). It appears children continue participating in various sports activities based on how they perceive their competence. In fact, based on this contention, Harter (1978) developed a model of competence motivation within a developmental framework. This model of competence predicts that children who perceive themselves to be highly competent at a skill will persist longer and continue to attempt to master the skill. On the other hand, children who perceive themselves to possess low competence will not persist and will lose interest in the activity. An important factor to consider is how accurate children perceive their motor skill competence. If the child is unaware of his/her actual competence level, it is possible that he/she may perceive his/her ability too low, resulting in low expectations for future performance. Therefore, the purpose of this investigation was to examine the relationship between children's perceived and actual motor skill competence. A total of 225 children between the ages of 9 and 12 years participated in this investigation. The subjects individually completed the Motor Skill Perceived Competence Scale (MSPCS). After completing the MSPCS, the subjects participated in a series of physical tests to measure their actual motor skill competence. Low to moderate correlations between the children's perceived competence and the motor skills tests ranged from 0.34 to .42. All correlations were statistically significant ($p<0.01$). Further investigation of the results revealed that children with high perceived competence were more accurate in assessing their competence levels than other children. In addition, there were no significant findings concerning gender or age for motor skill perceived competence and actual competence, contradicting earlier research findings. Although, the correlations between the children's perceived and motor skill performances were significant, the results indicate that the correlations are moderate. This suggests that children this age are moderately accurate in assessing their competence level. Therefore, it is important that teachers attempt to understand each child's perceived competence level, since children are not extremely accurate in assessing their own competence level. The present findings will be discussed in terms of the importance of detecting children who inaccurately perceive their motor skill competence.

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EFFECTS OF THE CANADIAN STANDARDIZED TEST OF FITNESS ON EXERCISE BEHAVIOR.

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The Canadian Standardized Test of Fitness (CSTF) was developed as a simple test of health-related physical fitness which could be used both in field and clinical laboratory settings. The test includes assessments of strength, muscular endurance, flexibility, cardio-respiratory endurance and body composition.

A stated purpose of the CSTF is to motivate individuals to greater levels of physical activity. While the motivational effectiveness of maximal exercise tests has been shown in certain clinical settings, this function has yet to be confirmed for the CSTF, which includes a submaximal test of aerobic fitness.

This study therefore investigated the ability of the CSTF to modify exercise behavior as measured by self-reported levels of exercise participation for a period of one month following the CSTF. A secondary purpose of the research was to examine attitude changes subsequent to the fitness appraisal.

Forty subjects voluntarily returned a questionnaire which attempted to assess the frequency, intensity and duration of exercise by means of a five point Likert scale. Subjects' attitudes toward exercise following the CSTF were also determined using an open-ended series of questions. Subjects were subsequently grouped according to age, sex and fitness level.

A series of 2 x 2 analyses of variance (ANOVA) performed on the data indicated a significant influence (p .05) of the CSTF on the frequency of exercise of unfit subjects ($M= 4.06$, $SD= 0.75$) as compared to fit subjects ($M= 3.52$, $SD= 0.67$). Further analysis showed no differences between sexes, age groups or fitness levels on the intensity or duration of exercise or the motivation to exercise since taking the CSTF (p .05). The author suggests that unfit individuals may feel that a fitness appraisal has a motivational usefulness whereas, for fit subjects, a fitness test may provide a base from which future comparisons can be made. An assessment of subjects' attitudes subsequent to the fitness appraisal confirmed the view that weight control was the factor most often cited as being important for the achievement and maintenance of good fitness. These findings indicate that the CSTF may be a useful short-term intervention to increase the exercise participation levels of Canadians.

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SPORTPSY ON BITNET. Michael L. Sachs, Temple University.

SPORTPSY is an Exercise and Sport Psychology bulletin board on BITNET. BITNET is an international electronic network of more than 2,100 computer systems at more than 700 colleges, universities, research centers, and other related institutions. BITNET allows individuals to communicate with others on the system quickly and efficiently. The BITNET network allows not only for effective communication, but also interactive messaging between users, bulletin boards for special interest groups, and transfer of large files. Bulletin boards, or lists, can be established in any area of interest. More than 1,000 lists on diverse topics are currently in existence, but very few are in physical education and the sport sciences. Two of particular interest in the sport sciences are BIOMCH-L, a Biomechanics and Kinesiology list, and SPORTPSY, an Exercise and Sport Psychology list. Information is provided on the development of SPORTPSY, accessing BITNET, subscribing to existing lists, and developing one's own list(s) in other areas. BITNET is an excellent tool to facilitate communication and information sharing in physical education and the sport sciences, and offers many opportunities for future development.

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ABSTRACT

The Effect Of Pace Training On Children's Performance Time And Heart Rate Response During A One-mile Run. W.A. Saltarelli Central Michigan University; F.F. Andres The University of Toledo; Michael Cunningham, Ohio State University-Lima

Fifty-five healthy 10 and 11 year old children (22 girls, 33 boys) consented to be subjects in this study. Parental consent was also obtained. Before pace training, all children were asked to run one mile in their school gymnasium. Each child's heart rate was recorded by telemetry. The run and a PWC-170 GXT performed on a bicycle ergometer were used to establish each child's initial fitness and performance levels. Children were then placed into 3 groups which were equal with respect to their mean initial run times, PWC scores, and body fat. Group 1 (PT) received 5, 15 min. sessions of pace instruction. Subjects were taught to run at a speed which elicited a heart rate of 85-95-% of the maximum HR attained during the initial one mile run. Groups 2 (WP) and 3 (CON) received the same number of sessions and were allowed to practice running without pace instruction. Following practice sessions, all children performed a second one mile run and GXT. Group 1(PT) subjects were asked to maintain their THRR throughout the run. Group 2 (WP) subjects used an electronic HR monitor to control their pace at comparable heart rates, while Group 3 (CON) served as a control. No training effect probably occurred since PWC-170 results were not different pre to post study ($p > 0.05$). The indices of cardiac response, i.e. mean heart rate during run, peak heart rate, recovery heart rate, and net cardiac cost were not found to be significantly different pre to post treatment for any group. Groups 1 and 2 improved their running times 56.8 (10.2%) and 52.7 (7.4%) sec respectively. Mean values for total change and percent change were significantly different from the control group (Kruskal-Wallis ANOVA $p < 0.01$). The authors conclude that children taught to maintain a steady physiologic pace between 85-95% of their maximum HR can improve their mile run time independent of aerobic training and ability. By incorporating the simple pacing techniques used in this study, into physical education curriculum and fitness testing protocols the estimates of cardiorespiratory endurance may be improved.

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THE EFFECTS OF DIFFERENTIAL PROXIMITY AND ACTIVE SUPERVISION ON THE ON-TASK BEHAVIOR OF JUNIOR HIGH PHYSICAL EDUCATION STUDENTS.

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Successful monitoring (active supervision) techniques have been shown to prevent the initiation and spread of off-task behavior and increase the opportunities for student work involvement. Teacher's proximity (location) and feedback to individual students have been identified as part of the monitoring process. Prior research has established proximity patterns, but little experimental research exists on the effects of differential location and active supervision on increasing the on-task behavior of junior high physical education students. The Alternating Treatments Design (ALT) was used to determine the effectiveness of three experimental conditions (a) close proximity to the target student issuing specific skill feedback, (b) distant proximity issuing specific skill feedback, and (c) distant proximity issuing no feedback on increasing the on-task behavior of frequently off-task junior high school students. On task was defined as the percent of total practice time the target student was engaged in assigned tasks, at the correct time, and in the correct location. Six frequently off-task male students were selected by their teachers for observation. Three experienced physical education teachers, one female and two males, were responsible for the administration of the three experimental conditions during a two week unit of volleyball and indoor floor hockey. The interventions consisted of specific skill feedback, positive and corrective, issued at .5 rpm and appropriate teacher location, distant or close proximity, for at least 50% of the 10 minute scheduled practice time. Cued reminders of the experimental condition were issued to the teacher at a rate of four per minute using a pre-recorded tape and a micro-cassette recorder. Data on student on-task behavior were collected from 48 videotaped practice sessions using duration recording. Eighteen (18) randomly selected practice sessions, representing each experimental condition, were coded by an independent observer. Interobserver agreement scores for teacher and target student location, teacher feedback rates, and student on-task behavior ranged from 85-100%. The implementation of the three experimental conditions was monitored by coding the duration of teacher and target student location and recording the occurrence and the time of specific skill feedback directed to the target student. Visual analysis of the graphically plotted data was used to analyze the functional relationship between the independent and dependent variables. The distant proximity with feedback and close proximity with feedback conditions produced consistently higher rates of on-task behavior across all target students in both activities than the distant with no feedback condition. It was concluded that active supervision from differential locations was effective in increasing the on-task behavior and opportunities for work involvement of frequently off-task students. This conclusion is of importance in view of identifying effective monitoring patterns for the complex settings of physical education.

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ANALYSIS OF VARIABILITY IN BASKETBALL FREE THROW SHOOTING STYLES.

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The purpose of this study was to analyze the variability in free throw shooting styles used by skilled collegiate basketball players. Ten male and ten female players (mean ages = 21.5 and 20.4 yrs, respectively) were the subjects of this investigation. Repeated trials of the sagittal view of free throw attempts were filmed with a Locam camera operating at a film transport speed of 100 fps. Four successful trials per subject were digitized with a Graf/Pen sonic digitizer interfaced to a Zenith Z-100 PC series microcomputer. Software written by Noble, Zollman, and Yu (1988) recorded x- and y-coordinates of 19 segmental endpoints and ball center. Raw data were smoothed with a low-pass digital filter using a cutoff frequency individually determined for each point digitized based on a Harmonic analysis of the raw data (Noble, et al., 1988). Angular position of the knee, shoulder, elbow, and wrist were averaged for the four digitized trials per subject. These points were graphed relative to time (SAS/Graph, 1985) to establish 20 individual shooting profiles. Twenty-six process variables from the graphs were statistically analyzed. Three regression models were built to attempt to assign variability demonstrated in the shooting profiles: (1) one containing six anthropometric measurements--height, mass, finger span, arm length, hand length, and biacromial width, (2) a second with gender added to the six anthropometric measurements, and (3) a third with reduced anthropometric measurements (height and weight combined to form a ponderal index and arm and hand length added to form a segmental length). Ten variables were significant at the .05 level. Adjusted R-squared values were highest with the first model for four elbow and one shoulder variables: (a) time from minimum elbow angle to release (Adj R-sq=.5904), (b) elbow velocity at release (Adj R-sq=.4990), (c) slope of elbow from start to minimum angle (Adj R-sq=.3869), (d) change in elbow angle from start to minimum angle (Adj R-sq=.3888), and (e) shoulder velocity at release (Adj R-sq=.4373). Adjusted R-square values were highest with the second model for two shoulder variables: (a) starting angle of the shoulder (Adj R-sq=.4841), and (b) change in shoulder angle from minimum angle to release (Adj R-sq=.4618). Adjusted R-squares were highest with the third model for three knee variables: (a) change in knee angle from minimum angle to release (Adj R-sq=.6582), (b) release angle of the knee (Adj R-sq=.3614), and (c) slope of knee angle from minimum angle minimum angle to release (Adj R-sq=.7959). The results of this study suggest that differences in shooting styles may be accounted for by both gender and body size.

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IMPACT OF CHOLESTEROL SCREENING ON YOUNG ADULTS.

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Due to the strong association between high blood cholesterol levels and coronary heart disease in adults, the expert panel of the National Cholesterol Education Program (NCEP) has stated that all adults aged 20 and over should have their cholesterol measured. While cholesterol screenings have become common, however, little has been done to measure the impact, particularly on young adults, of such screenings. The purpose of this study, therefore, was to assess the impact of cholesterol screening on college students (n=179; 135 females, 44 males; 21.4 ± 4.1 years of age). Subjects were enrolled in a self-paced personal fitness course, for which a cholesterol screening was a routine requirement, at a major midwestern university. Subjects first filled out a heart disease risk factor form. During the three minutes it took a Reflotron machine to measure a finger stick sample of blood, the technician gave each subject a handout, and discussed basic educational information from the NCEP. Cholesterol levels were then written on their handouts, and the specific follow-up recommendation was noted. Six weeks later, subjects filled out a follow-up questionnaire which revealed that 76% remembered their cholesterol level exactly, while an additional 12% were within 10 mg of the correct value. However, only 36% could state why their cholesterol level was important, and only 21% remembered the three categories and corresponding values of cholesterol (desirable <200; borderline high 200-239; high ≥240). Furthermore, only 36% could correctly identify the appropriate follow-up, even though it was noted orally and circled on their handout. Chi square analyses revealed no significant differences between expected and observed frequencies for gender or cholesterol category by cognitive information retention. However, analyses did reveal self-reported dietary ($p<.0001$) and exercise changes ($p<.005$) to be dependent upon cholesterol category, with those testing above 200 mg/dl (13%) reporting more change than those below 200. It would seem that college students remember their cholesterol levels, and may take some action if they are above the desirable level, but many do not remember what it means, why it is important, or what they should do next. Since blood cholesterol levels track upward by 50-60 mg/dl from the early 20s to the late 50s, it would also seem that college students with average blood cholesterol levels for their age should receive some attention in the cholesterol screening intervention process.

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WINGATE TESTING: RELIABILITY AND LEARNING EFFECT

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The purposes of this study were to determine the trial-to-trial reliability of the Wingate Anaerobic Test (WAT), to investigate whether any learning effect may occur with its administration, and if so, to establish a trend-free trial schedule to derive reliable data. Male subjects (18-24 years of age) were randomly assigned to one of two testing schedules, either twice-a-day (*n* = 13) or daily (*n* = 12). In the twice-a-day group, subjects performed the WAT two times a day for three consecutive days, with an hour recovery between trials on a given day. In the daily group, subjects performed the WAT once a day for 6 consecutive days. The traditional WAT protocol was used in each exercise session to investigate peak anaerobic power (PP), average anaerobic power (AP), and anaerobic power decline (PD). Group X Trial ANOVAs indicated there were significant differences within both groups for the day-to-day trial scores in PP and AP, but not in PD. The observed differences usually indicated that a learning effect was occurring during the initial trial of the multiple-trial WAT. The means for the daily group were consistently higher than for the twice-a-day group, but not significantly so. The pattern for WAT scores over the six trials was generally similar in both groups, with interactions only seen for PP and AP between the 5th and 6th trials and for AP between the 1st and 2nd trials. Highest reliabilities (PP: *r*=.97; AP: *r*=.98; PD: *r*=.95) were similar for the testing schedules, however, the daily schedule maximized PP and AP on the 4th trial and optimized PD scores on the 5th trial. Therefore, the daily schedule provided the best combination of reliability and WAT scores. It is unfortunate that the daily schedule also results in the greatest time cost. The WAT administration schedule the researcher selects depends on the anaerobic parameters of greatest interest, the time available for testing, and the degree of reliability and optimization of test scores that is acceptable.

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THE INFLUENCE OF FITNESS LEVEL ON POSTEXERCISE ENERGY EXPENDITURE.

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It is commonly believed that individuals with higher fitness levels recover from exercise at a faster rate than those with a lower fitness level. In this regard, it would seem that post-exercise energy expenditure might be compromised with increased levels of fitness. Few investigations have examined this phenomenon, all of which incorporated weight-bearing (treadmill) exercise. However, energy expenditure during this type of exercise is influenced by body weight which may, in turn, affect postexercise energy expenditure. Therefore, in order to control for differences in body weight and exercise energy expenditure, the purpose of this study was to examine the effect of fitness level on excess post-exercise oxygen consumption (EPOC) during a weight-supported (cycle ergometer) 300 kcal exercise. Subjects were 8 endurance trained and 8 sedentary male volunteers. The exercise was performed in the morning following an overnight fast and with the subjects having refrained from any strenuous activity for the previous 24-36 hours. Exercise intensity was 50% of each subject's previously determined peak oxygen uptake ($\dot{V}O_2$). $\dot{V}O_2$ was measured for 1 hr prior to exercise to establish the baseline value, and continuously in the postexercise period until the baseline value was achieved. Body weight was significantly greater ($p \leq 0.02$) in the unfit group ($\bar{x} \pm SD = 82.7 \pm 9.4$ kg) than in the fit group (67.0 ± 6.2 kg), as was baseline $\dot{V}O_2$ (0.34 ± 0.03 and 0.26 ± 0.02 $L \cdot min^{-1}$, respectively) ($p \leq 0.01$). However, when expressed relative to body weight, baseline $\dot{V}O_2$ was similar ($p > 0.05$) between the groups (unfit = 4.19 ± 0.58 and fit = 3.93 ± 0.36 $ml \cdot kg^{-1} \cdot min^{-1}$). There was no evidence of a prolonged EPOC in either group. Duration of EPOC was 20.0 ± 5.9 min and 23.1 ± 8.8 min ($p > 0.05$) in the fit and unfit groups, respectively. Magnitude of EPOC, which was not significantly different, averaged 14.9 ± 7.1 kcal in the fit group and 12.4 ± 4.1 kcal in the unfit group. The results suggest that EPOC following a weight-supported exercise of an intensity and duration frequently used by individuals who begin an exercise program for weight control will not be compromised by changes in body weight or fitness level.

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THE EFFECTS OF DIFFERENT LEVELS OF MUSCULAR STRENGTH ON THE KINEMATICS OF LIFTING. Gina Sharpe, Berry College; Jack Wasserman, Wendell Liemohn, John Hungerford, The University of Tennessee, Knoxville.

Muscular strength is an important consideration in preventing low back trouble associated with heavy lifting tasks. The purpose of this study was to examine the effects of different levels of muscular strength on body posturing during lifting. In this investigation forty-two apparently healthy male university students underwent a battery of tests to determine their respective levels of strength. From this group six were identified as being of a high level of strength and six were identified as being of a low level of strength. These 12 subjects received instruction on how to perform a manual lifting task; the task was to displace a 40kg box from the floor to the height of the umbilicus. Cinematographic techniques were used to examine the (a) angular positioning of the knee and torso and (b) moment arm of the box lifted relative to the body's center of gravity. In addition, a lumbar monitor was used to record angular positioning of the low back. These kinematic parameters were assessed throughout the duration of the lift and analysis of variance was used to compare the performance of the high and low strength subjects at selected points in the lifting cycle. Significant differences were found between the high and low strength groups for posturing of the knee, torso, and lumbar spine. Throughout most of the duration of the lift the high strength subjects demonstrated more pronounced knee flexion and greater trunk extension as is seen in the usually recommended squat method of lifting. The low strength subjects were more variable in their lifting postures; some lifted in a manner similar to the high strength subjects and others selected a more extended-knee, flexed-torso posturing. Based on the results of this study it was concluded that variations in the levels of strength may be accompanied by differences in body posturing during lifting. This study suggests that individuals with lower levels of strength may need resistance training for their knee and hip extensor musculature before they can use the squat method of lifting.

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Context Dependent Learning in Motor Skills

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Motor skills are often learned under one context with the expectation that performance will not suffer if incidental contextual cue are changed. Incidental contextual cues are defined as perceptual variables that can be associated with the learning environment but are not directly identified as important to task performance. Incidental contextual dependencies have been demonstrated in verbal recall tasks (Smith, Glenberg & Bjork, 1978; Gooden & Baddely, 1975). That is, recall performance under initial acquisition context was superior to that obtained in a switched context condition. The purpose of the present experiments was to determine the extent to which incidental contextual cues influenced motor skill learning. In each of two experiments, subjects (N=30 per experiment) attempted to learn three sequences of key presses in a random order. Subjects sat facing a color computer monitor and placed their fingers in a standard touch typing position on a keyboard. An incidental contextual environment was manipulated by pairing each sequence with a particular color, shape of key, position on the monitor and tone. On each trial, the desired sequence of key presses was presented for .2, .4, or .6 sec in a format that was highly compatible with the position of the keys/fingers. Subjects were required to execute the appropriate key presses on the termination of the display. Only 2 sec were permitted to complete the series of key presses. All subjects received 9 blocks of 12 acquisition trials (108 total trials). Retention was assessed on each of the three sequences under either the same incidental context or under a switched incidental context. A four and a three key sequence were used in Experiment 1 and 2, respectively to investigate whether dependencies are influenced by task complexity. The results indicated that retention performance suffered when contextual cues were switched for the four key sequences (Experiment 1) which was not the case for the three key sequences (Experiment 2). However, considerable time lag were evident for initiating the three key sequence indicating some degree of context dependency.

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STEROID USE IN HIGH SCHOOL ATHLETES.

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The purpose of this study was to examine anabolic steroid (AS) use by high school athletes. A stratified (region and classification) cluster sample of 19 high schools was randomly selected from all high schools in the state of North Carolina. All athletes, grades 10-12, at each school were then surveyed via a questionnaire administered by the investigator. Overall, three percent of the sample (95% CI = ± .65%) had lifetime experience (LTE-used AS at least once) with AS. Student-athletes indicating current use in-season and off-season were 2.7% and 3.6%, respectively. AS users as a group had the following characteristics relative to LTE: Gender: 92.4% males, 7.6% females; Grade: 34.7% 12th, 31.9% 11th, and 33.3% 10th; Race: 63.3% white, 26.6% black, and 10.1% other; Geographic region: Coastal Plain, Piedmont, and Mountain regions reported AS use was 2.2%, 3.1%, and 3.5% of the sample, respectively. Similarly, AS use in 1A-2A schools was 3.4% and 2.7% for 3A-4A. Sports participated in by AS users were: Football 63.7%, Baseball 25.0%, Basketball 18.8%, Outdoor Track 13.7%, Wrestling, 12.5%, Cross Country 11.2%, with all other sports being 8.7% or less. Slightly more than 86% of AS users were starters on at least one athletic team. LTE with other drugs by AS users was as follows: Alcohol 87.5%, Cigarettes 75.0%, Other Tobacco 75.0%, Marijuana 62.5%, Speed 55.0%, Sniffing Glue 37.5%, Cocaine 36.2%, Crack 22.5%, LSD 18.8%, and Heroin 17.5%. Chi Square analyses performed to determine if any relationships existed between AS use and gender, grade, race, region, or classification produced one significant finding. Use of AS by males was greater than by females ($P < .0001$), an obvious expectation. Tests (z test of difference between proportions) were performed to determine if AS users differed from the overall sample with respect to use of other drugs. Use of other drugs by AS users was found to be significantly greater ($P < .0004$) for all drugs except alcohol ($P > .63$). The following paradigms were revealed: 1) the highest grade level had the highest rate of use; 2) AS users are predominately white and almost all male; 3) proportionately the mountain region has the highest use, with the piedmont second, coastal plain third; 4) use of AS was greater in the smaller schools; 5) users play football more than any other sport. Perhaps the most dramatic finding centers around other drugs used by AS users, those percentages are higher in every instance than the corresponding percentage for the total sample. Most AS users, 86.2%, indicated they were starters on one or more teams, thus more than 2500 student-athletes (approximately 2.5%) in North Carolina who are playing a significant role in interscholastic athletic contests may be heavily into many drugs. . . not just ASs. It would appear that the high school student-athlete AS user should be targeted, not only for his AS use, but other drug use as well. Any intervention/education programs should consider this finding.

*This study supported by both the NCHSAA and the University of North Carolina-Chapel Hill

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RELIABILITY AND VALIDITY FOR THE PURPOSES FOR ENGAGING IN PHYSICAL ACTIVITY SURVEY.

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This study, intended to extend the work completed by Steinhardt, Jewett, and Mullan (1988), examined the reliability and validity of the Purposes for Engaging in Physical Activity Survey (PEPAS) when used in a college setting. The PEPAS was developed based on the purpose component of the Purpose Process Curriculum Framework (PPCF). The PEPAS contains 22 items addressing the three key components identified in the PPCF: individual development, environmental coping, and social interaction . Prior to the Steinhardt et. al. study (which examined validity using fourth and sixth grade students) evidence of the validity of this set of 22 purposes was qualitative in nature. Efforts to examine the validity of these items quantitatively for use with populations that vary in age, gender, ethnicity and other characteristics are essential for establishing the value of the PPCF. The sample for this study consisted of 547 (246 male, 301 female) college students enrolled in activity classes. With respect to ethnicity, 30% were Asian, 3% black, 46% Caucasian, 10% Hispanic, and 4% Native American. A Principle components factor analysis with varimax rotation produced four factors that accounted for 66.2% of the variance. Factors were given labels based on the contents of items that loaded .60 or higher on each factor. Factor one contained nine items and was labeled individual development. Factor two, labeled social interaction, contained 6 items. Factor three contained three items and was labeled personal expression. Factor four, labeled environmental coping, contained four items. Except for the social interaction factor, this factor structure matched the PPCF quite well. The PPCF with only three factors in the purpose dimension would have grouped the personal expression items with the social interaction items. However, the personal expression items loaded clearly (.71, .81, .77) as a separate factor. Additionally, from an intuitive perspective, the personal expression items are fundamentally different from the social interaction items since the focus is self. The Social interaction items focus on others or one's impact on others. Internal consistency estimates, calculated using an Intraclass R, were .91 (Individual development), .85 (social interaction), .80 (personal expression), and .81 (environmental coping). Based on these results, the PEPAS was found to be a valid and reliable instrument for determining college students' purposes for engaging in physical activity.

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THE INTERACTION OF INSTRUCTIONS AND ACCURACY DEMAND ON THE PROGRAMMING OF RAPID MOTOR RESPONSES.

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This study examined the effect of experimental instructions and response subtended angle on the control strategy adopted by subjects performing rapid target striking responses. Recently, Sidaway et al. (1988) proposed that, when a response is completely preprogrammed, the subtended angle of a response can determine the length of the programming process. Ten subjects were required to strike 4 circular targets with a hand-held stylus within a simple reaction time (SRT) paradigm. The 4 target conditions were: a) a 1cm diameter target 20cm from the start, b) a 2cm target 40cm away, c) a 3cm target 20cm away, and d) a 6cm target 40cm away. Conditions a and b both subtended an angle of 2.9 degrees while conditions c and d both subtended an angle of 8.6 degrees. Subjects performed 60 trials in each condition. On different days subjects were encouraged to either completely preprogram the entire response or to use feedback to control the response. A 3-way repeated measures ANOVA (Instructions x Subtended Angle x Movement Distance) on the SRT data revealed significant main effects for instructions, $F(1,9)=47.9$, $p<.01$, and subtended angle, $F(1,9)=15.4$, $p<.01$. However, the interaction of angle and instructions was also significant, $F(1,9)=29.1$, $p<.01$. Analysis of this interaction revealed that under feedback instructions SRTs for the 4 responses were not significantly different (M=183ms, 186ms, 187ms, and 185ms for responses a, b, c, and d respectively). However, under preprogramming instructions the effect of subtended angle showed that SRT for responses with a subtended angle of 2.9 degrees was significantly slower (M= 214ms, 213ms) than for a 8.6 degree subtended angle (M= 192ms, 195ms). SRT differences within the angles were not significantly different. All programmed response SRTs were slower than those from feedback controlled responses. These results support the notion that subtended angle can be an important parameter in programming complexity and that the effect can differ according to subjects' control strategy. These findings may explain why some studies fail to find an effect of response complexity on SRT.

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THE VALIDITY OF ACADEMIC LEARNING TIME-PHYSICAL EDUCATION (ALT-PE) AS A PROCESS MEASURE OF ACHIEVEMENT.

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The purpose of this study was to determine whether the ALT-PE system is valid as a process approach to estimate student achievement. Although widely used, no direct assessment of the relationship of ALT-PE categories and student achievement has been completed. Sixty students in 10 classes were randomly selected and coded using the ALT-PE (version 2) system. Students were 6th, 7th, or 8th graders and are part of a physical education data base which includes pretest and posttest scores for the volleyball forearm pass and underhand serve, and videotaped instruction of seven consecutive class sessions. The classes were taught by their regularly scheduled teacher as part of the school physical education curriculum. Videotapes were collected using two cameras and a split-screen so that virtually all instruction and practice could be seen. Each student was be identified by a numbered pinafore worn during class. Coders were trained to reliably use the ALT-PE system. Data collection did not occur until interobserver agreement was at the .90 level for three consecutive classes. Forty interobserver agreement checks during data collection all were above .80 with a mean of .87. Coders were prompted to observe and record behavior by a specially prepared audiotape using a six second interval and 24 second cycle. Since two skills were taught and tested, coders recorded the skill which was the focus of instruction in addition to ALT-PE variables. Combinations of context and learner involvement categories were summed for each skill across the seven class sessions and these variables were summed to form other logical categories (e.g., ALT-PE(M)). Achievement scores were calculated by posttest on pretest regression for each skill with the residual score used for subsequent analysis. Residual achievement scores were correlated with summed ALT-PE categories. The results indicate that for the serve both total motor appropriate ($r = .36$, $p < .01$) and practice-motor appropriate ($r = .33$, $p < .01$) intervals were related to student achievement. For the pass, practice-motor appropriate ($r = .22$, $p < .05$) intervals were related to achievement while the total motor appropriate-achievement correlation missed significance. These results demonstrate that the validity of the ALT-PE system as a process measure of achievement can be substantiated.

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FEEDBACK TO INDIVIDUAL STUDENTS IN PHYSICAL EDUCATION: AN ANALYSIS OF SEX AND INITIAL SKILL LEVEL.

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As part of a large study of feedback in physical education, the purpose of this study was to determine if differential feedback was provided to males and females, and students who were of high, medium, and low initial skill levels. Subjects were 202 6th, 7th, and 8th graders in 10 classes who are part of a data base which includes pretest and posttest scores for the volleyball forearm pass and underhand serve, and videotaped instruction of seven consecutive class sessions. Videotapes were collected using two cameras and a split-screen. Virtually all instruction and practice could be seen and heard on the video monitor. Each student was identified by a numbered pinafore worn during class. The Fishman-Toby system for measuring feedback in physical education was adapted and validated for this study. For each instance of skill related feedback provided to students, coders recorded the student and skill to which the feedback was directed, and the type, form, time, referent, and quality of the feedback. Data collection did not begin until interobserver agreement was at .90 or above for three consecutive classes. During data collection interobserver agreement checks were completed on 10% of the classes. All checks were .90 or higher. Feedback was summed for each student for all category combinations and for broad categories of type, form, time, and referent. In addition, all instances of feedback to a student were tallied. Analyses were performed separately for the forearm pass and serve. Student entry skill level was trichotimized using pretest scores into a high, medium, and low initial skill level group. Two-way ANOVAs and MANOVAs (sex x skill level) were performed for total feedback for and for subcategories of feedback type, form, time, and referent. MANOVA was followed-up by discriminant analysis, ANOVA, and ANCOVA. Mean of total feedback was 14.55 (s.d. = 14.57) and 13.85 (s.d. = 15.90) for the pass and serve, respectively. There were no group differences for total feedback for either skill or for subcategories for the pass. For the serve there were differences between skill groups for two form subcategories ($\underline{F}(6,191) = 1.86$, $\underline{p} < .05$). Although there were large differences across students, teachers provided equitable feedback based on sex and skill level.

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SUICIDE BEHAVIOR AND KNOWLEDGE OF ALABAMA ADOLESCENTS.

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Suicide is now the second leading cause of death for adolescents. The purpose of this study was to 1) examine knowledge, feelings and behavior concerning suicide among adolescents and 2) determine if gender or geographical location influences these factors. Data were obtained from the Alabama Adolescent Health Survey. Questionnaires were administered to 3851 eighth and tenth grade students in Alabama. Fifty-two percent were females and 48% males, while 20% lived in rural areas, 43% in moderate-sized communities and 37% in urban areas. The sample was 62% white, 35% black, and 3% other. Nineteen percent of the females, 12% of the males, and 14% and 17% respectively of the rural and urban students reported that they had tried to hurt themselves in a way that could have resulted in their death. Chi-square analysis indicated that suicide behavior differed by sex ($x^2 = 35.31$; $p < .01$) but not by rural or urban status. Sixteen percent of both rural and urban students said they often felt sad and hopeless, while 20% of the females and 10% of the males indicated these feelings. Thirteen percent of the females and 8% of the males reported they felt there was nothing to look forward to while 11% of the rural and urban students indicated likewise. Suicide knowledge was assessed using a 7-item scale (Cronbach's Alpha .83). The mean score on this scale was 4.0. Analysis of variance comparisons by gender and rural and urban status showed significant main effects ($p < .01$) indicating that females and urban students had significantly greater suicide knowledge. Findings indicate that females have more suicide knowledge than males, but are at greater risk for suicidal behavior. Similarly, urban students have more suicide knowledge than rural students but suicidal behavior does not differ among these groups. Implications are that current suicide education programs are not changing behaviors. Future interventions should also focus more on females since they demonstrate greater suicidal behavior.

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THE SUBCOMPONENTS OF THE FAT-FREE BODY TO HEIGHT RELATIONSHIPS BETWEEN SWIMMERS AND NON-SWIMMER CHILDREN.

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Consistent engagement in rigorous physical activity should increase fat-free body (FFB) growth and development. This study was designed to determine whether gender or activity group significantly influenced the relationship between selected subcomponents of the FFB [bone mineral content (BMC), bone width (BW), bone mineral index (BMI), and total body water (TBW)] and height. Competitive age group swimmers and normally active children (total N=178), aged 7 to 14.5 years, were divided into four groups based on gender and activity: male swimmers (N=23), female swimmers (N=25), male non-swimmers (N=74), and female non-swimmers (N=56). Measures of age, height, weight, bone mineral (single photon absorptiometry), total body water (modified deuterium dilution), and body density (hydrostatic weighing, corrected for functional residual volume) were obtained for each subject. Regression analysis was used to determine the relationship between each subcomponent of the FFB and height within gender and activity group, thus yielding 16 equations (4 subcomponents x 4 groups). One set of four of these regression lines depicting the relationship between BMI and height appear below:

Male swimmers: $Y = .00246(ht) + .170$; SEE = .04
Female swimmers: $Y = .00346(ht) + .040$; SEE = .06
Male non-swimmers: $Y = .00366(ht) - .003$; SEE = .04
Female non-swimmers: $Y = .00421(ht) - .080$; SEE = .04

Least squares multiple regression analysis revealed no significant gender or group differences in any of the subcomponents of the FFB to height relationships. These results imply that the growth and development of the subcomponents of the FFB were no greater in the competitive swimmers than in their normally active counterparts. Likewise, the observed relationships in males were no different than those found in females. These surprising results indicate that more work is needed to further test the effects of intense physical activity on the growth and development of the subcomponents of the FFB. Special attention should be directed to the type of activity, age of initiation, and duration of participation.

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Tobacco Prevention in North Carolina Public Schools. Dennis W. Smith, Ph.D., University of North Carolina at Greensboro, Allan B. Steckler, Dr.P.H., University of North Carolina at Chapel Hill, Keith A. Howell, Ph.D., University of North Carolina at Greensboro.

This study assessed the extent of, and organization for tobacco prevention education in North Carolina public schools. Moreover, issues for the diffusion of tobacco prevention curriculum were investigated. A questionnaire examining tobacco education practices and curriculum within school districts was mailed to a health education contact person in each of the North Carolina public school districts. One hundred twenty-five usable questionnaires were returned for analysis (125/140= 89.3%). Of the school districts responding to the survey, 101 (80.8%) reported having adopted a system-wide curriculum which includes tobacco-related instruction. Additionally, a large percentage of the school districts with an adopted curriculum were using commercially published materials (85.2%). Large tobacco producing counties in North Carolina were not significantly different than other counties in the adoption ($r=.178$, $p=.072$) or public acceptance ($r=.148$, $p=.188$) of school programs with a tobacco prevention component. However, school systems with an adopted district-wide tobacco education curriculum were more likely to have an adopted, general tobacco use policy for the district ($x^2 = 4.41$, $p < .05$). This study evidenced that individual school systems are involved with multiple tobacco prevention curriculum. The sample reported 237 references to the district-wide use of 13 total published curricula ($\bar{x}=3$). The findings of this investigation include the high degree to which tobacco education has been adopted and implemented by school districts in a tobacco producing state. The significant association between policy and curriculum is, perhaps, further reinforcement of the effect of a general district-wide tobacco policy on tobacco-use behaviors. Key diffusion issues include the impact of multi-tobacco curricula use to the introduction of new and effective material, as well as the association between district-wide, tobacco use policies and the adoption of curriculum.

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EFFECTS OF ADDITION OF ARM MOVEMENTS WITH AND WITHOUT HANDHELD WEIGHTS TO REBOUNDING EXERCISE.

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Handheld weights (HHW) are used in conjunction with various forms of aerobic exercise such as aerobic dance and minitrampoline rebounding. The addition of HHW to a given exercise is presumed to increase the work output and hence the energy requirement. This study examined the effects of HHW on exercise intensity by comparing the energy cost of various arm movements, with and without HHW, during rebounding. The arm movements chosen for testing were among those normally utilized in aerobic dance exercise. The subjects were eight females (mean age 18.4 years) who were enrolled in an aerobic dance class. They rebounded at a frequency of 120 foot strikes per minute with a leg lift of six inches above the rebounder rim. In the first test session, the subjects rebounded without arm movements and then rebounded while performing each of the four specified arm movements. A five minute rest was taken between each rebounding period. In a second test session, the same movements were performed but with one pound HHW. The order of arm movements was randomized in each case and VO_2 and heart rate (HR) were measured for each test condition. In the third test session, treadmill max VO_2 was determined. A repeated measures ANOVA was employed to analyze the data. The VO_2 (ml/kg) requirement for each condition was as follows:

	Rebounding	Rebounding with Arm Movements			
	Only	#1	#2	#3	#4
Without HHW	25.8	30.0	31.1	32.0	30.8
With HHW		32.5	32.4	32.1	32.3

Rebounding while performing each of the four arm movements produced significantly higher VO_2s ($p<.05$) than rebounding alone. Although, the addition of HHW significantly increased exercise intensity, the magnitude was such that it is of little practical significance. The intensities of rebounding without arm movements and rebounding while performing the arm movements ranged from 67 to 85% of max VO_2. Adding arm movements to rebound exercise should allow for a training effect for a wide range of fitness levels.

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THOUGHT PROCESSES OF ADAPTED PHYSICAL EDUCATION TEACHERS.
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One approach to the study of teaching is to examine differences in expert and novice teachers' thought processes during the preactive and interactive phases of teaching. This study explored the cognitive responses of adapted physical education teachers during planning. Specifically, the focus of this investigation was to determine if teachers varying in experience and expertise differ in: (a) the knowledge they need to plan a lesson; (b) how they conceptualize a lesson; and (c) what they attend to in interpreting classroom information. Novices in this study (n=4) were preservice teachers who were completing coursework for certification in adapted physical education. The expert teachers (n=4) were recommended by the district supervisor and selected after observations by the researchers. The four expert teachers all had Master's degrees and over 10 years experience. The subjects completed two tasks. In the first session, they were given information about a fictional class of handicapped students and asked to plan a lesson. They were encouraged to request additional information at any time during the planning. After writing a lesson plan, they were asked to explain their lesson to the experimenter. For the second task, subjects were shown a videotape of an adapted physical education class and asked to record their observations as well as modifications they would have made if they had been teaching the lesson. All verbal responses were audiotaped and transcribed verbatim. Data from the transcriptions and the subjects' written responses were subjected to a content analysis in which statements were coded into categories derived during analysis. The results from the content analysis, supported by qualitative inspection of the data and field notes recorded by the investigators, provided clear evidence of the experienced teachers' superior knowledge base and repertoire of teaching strategies. Their responses were filled with contingency plans based on the actions and abilities exhibited by the students. In contrast, the novices generated plans which were unidirectional and failed to accommodate the range of ability levels in the class. While there was little variation in how the two groups described the actions occurring in the class, the experts often combined evaluation with interpretation. They focused on relevant cues and suggested a wide array of specific alternative teaching actions. The novices tended to recommend general modifications. Findings support previous research suggesting the preparation of teachers should be studied from a developmental perspective.

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A Comparison of Selected Training Responses to Water Aerobics and Low-Impact Aerobics. Terry-Ann Spitzer, Boise State University; James R. Moore, Idaho Sports Medicine Institute; David R. Hopkins, Indiana State University; and Werner W.K. Hoeger, Boise State University.

A volunteer sample of forty-nine (n=49) females ranging in age from 15 to 35 years (M=26, s=+5.9) were enrolled in a water aerobics (n=20), low-impact aerobics (n=15), and a control group (n=14). Following eight weeks of training, comparisons were made among the three groups on pre and post measures of treadmill time, estimated max VO_2, resting heart rate, body weight, percent fat, shoulder flexibility, body rotation flexibility, sit and reach flexibility, and isokinetic strength evaluations of the knee and shoulder. Multiple analysis of covariance (MANCOVA) with post-test fitness measures as the dependent variables and the pre-test measures as the covariates yielded a significant omnibus F (Wilks = .22, F = 4.4, $p < .01$). Follow-up ANCOVAs indicated that significant differences ($p < .05$) were found between the treatment groups (water aerobics and low-impact aerobics) and the control on treadmill time, estimated max. VO_2, resting heart rate, percent fat, sit and reach flexibility, left knee flexion at 300 degrees/sec., left shoulder flexion at 50 degrees/sec., and right shoulder flexion at 50, 189, and 300 degrees/sec. However, comparisons between the water aerobics group and the low-impact aerobics group indicated significant differences ($p < .05$) following training on strength measures of the left knee (300 degrees/sec. flexion), left shoulder (60 degrees/sec. flexion), and the right shoulder (60, 180, and 300 degrees/sec. flexion) only. This study indicated that water aerobics and low-impact aerobics produce similar training benefits following an eight-week exercise program. The water aerobics, however, demonstrated greater strength gains as compared to the low-impact aerobics group.

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GOING THROUGH TEACHER EDUCATION: A FUTURE PHYSICAL EDUCATOR'S RESPONSE TO EARLY TRAINING EXPERIENCES FOR TEACHING.

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In spite of the recent attention and debate over the preparation of teachers, remarkably little research on the process of teacher education has occurred to date (Locke, 1984). To answer this need, this investigation sought to examine "what goes on" when preservice teachers interact with teacher training experiences. The purpose of the study was to describe how one future physical education teacher responded to coursework designed to prepare her for teaching. Socialization theory was used to frame the research, which was designed as a case study of the first courses in a teacher preparation program. Qualitative research methods were used. Data were collected with participant observation, formal and informal interviews, and document analysis. Field notes, transcripts, and other data sources were analyzed inductively for emergent themes. Results indicate that, although the student came into teacher education with a commitment to become a good teacher, she participated in these training experiences with just enough effort to meet course demands and earn an acceptable grade. There was little effort to go beyond the essential course demands. She also avoided participation in certain experiences. Her perspective of desiring to get through college and get a job sometimes ran counter to the perspective of the faculty members with whom she worked. When the course demands were light, she did not go the extra mile, even when she was capable of doing so; when the demands were not closely supervised and she found them difficult or embarrassing, she was successful in avoiding or adjusting them. However, when the demands were rigorous and closely supervised, she rose to the standards set by the instructors, albeit with difficulty. The results imply teacher educators need to be both vigilant and tough if they expect to raise the standards of student performance. They also implies that when teacher educators do increase the demands of their courses, future physical educators may well have the resources to meet them.

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PERSONAL INCENTIVES AND HEALTH: DIFFERENCES ACCORDING TO GENDER AND LEVEL OF INVOLVEMENT IN HEALTH-RELATED BEHAVIORS. Linda J. Stonecipher, M.A., Marlene K. Tappe, Ph.D., Purdue University.

The study assessed the motivational determinants of undergraduate students toward health. Personal Investment Theory was used to examine these determinants. This theory proposes that investment in health-related behaviors is dependent upon the meaning of the behavior to the person. Meaning is comprised of four interrelated facets: personal incentives, sense of self perceptions, perceived options, and perceived barriers. A comprehensive questionnaire which assessed three of the meaning facets, as well as their health practices, was administered to 250 male (n=104) and female (n=146) undergraduates at a large Midwestern university (M age = 20.9). Data were analyzed by descriptive statistics, independent sample t-tests, discriminant analyses, and multiple regression procedures. The most important incentives to practice health behaviors were appearance/fitness, promoting wellness/self actualization, and prevention of disease. Independent sample t-tests indicated that females scored significantly higher than males on four personal incentives as well as health value. Males scored significantly higher on the personal incentive of performance. Discriminant analysis, using groups defined by level of involved in health practices (high/low), revealed a significant function which included variables representing the three components of meaning and correctly identified 78.6% of all subjects. Multiple regression analysis revealed meaning components which significantly predicted total behavior score ($R^2 = .24$), Breslow's health habits ($R^2 = .10$), the practice of five dietary behaviors ($R^2 = .22$), as well as involvement in stress reduction/health practices ($R^2 = .32$). Independent sample t-tests revealed that the high level health practice group scored significantly higher on four of the health incentives as well as LOC-Internal, Health Value, Self-Motivation, and support from others. Conversely, the low level group scored significantly lower on LOC-Luck and total barriers. A second discriminant analysis using groups defined by gender yielded a significant function and correctly classified 72.8% of all subjects. The results from this study supported the application of Personal Investment Theory to the study of general health practices. Knowledge of the motivational determinants of health behaviors provide valuable insight for further research as well as the development and implementation of effective health promotion and education interventions.

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DEVELOPMENTAL SEQUENCES FOR CATCHING A SMALL BALL: A PRELONGITUDINAL SCREENING. H. Scott Strohmeyer, Kathleen Williams, Diana Schaub-George, University of North Carolina at Greensboro.

Developmental skill sequences have been identified for many skills, like hopping or throwing. Some of these sequences are validated cross-sectionally, while many others remain untested. Catching is a skill for which developmental sequences are hypothesized, but not yet validated. The purpose of this investigation was to validate catching sequences hypothesized and modified from Harper's (1979) catching sequences. These sequences were modified after a pilot study (Strohmeyer and Schaub-George, 1989) indicated that the originally hypothesized sequences were not comprehensive. Seventy-four subjects, ranging in age from five through twelve years (60 to 149 months), were videotaped (30 fps) from lateral and anterior aspects. Each subject attempted to catch a small softball sized (100 mm), leather covered yarn ball. At least nine catching attempts were given. Three moderately-paced tosses were made to each of three locations: 1) directly to the subject's body; 2) at the subject's forehead; and 3) to various locations (left, right, high, low) around the subject. A total of 540 trials were available from the seventy-four children. These trials were categorized using the modified developmental sequences (Strohmeyer and Schaub-George, 1989), which included four components: arm/preparation, arm/reception, hands, and body. Each catching component was divided into phases, or developmental levels describing the course of change occurring from immature to advanced levels of performance. These data were analyzed using the screening procedure described by Roberton, Williams, and Langendorfer (1980). This procedure is used in a prelmininary investigation of a movement sequence prior to costly longitudinal data collection. Preliminary data screening resulted in clarification of descriptions for several developmental levels. The resulting movement sequences were comprehensive for the age groups studied within the conditions of the investigation. Data also indicated that skill development in catching exhibits an age-relatedness. That is, younger subjects tended to be categorized at lower developmental phases of each component while older subjects were categorized in the upper developmental phases. Future studies, varying ball size or type will be needed to test the comprehensiveness of the proposed sequences for all catching skills and testing protocols.

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THE CARDIOVASCULAR RESPONSE TO PRE-EXERCISE CAFFEINE INGESTION IN HIGH COMPARED TO LOW CAFFEINE USERS.

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The purpose of this study was to investigate the cardiovascular response to prolonged walking following caffeine ingestion in high caffeine users (HCU) compared to low caffeine users (LCU). Ten trained males (age 20-28 years) were classified as either HCU (n=5; >300 mg/day) or LCU (n=5; <50 mg/day) based on a seven day diet analysis. On two separate occasions subjects reported to the laboratory 12 hrs caffeine abstinent and post-prandial. Forty-five minutes following ingestion of either 3.3 mg/kg of caffeine citrate or a placebo using a double blind protocol, the subjects walked on a treadmill at constant speed and grade for fifty minutes while metabolic and cardiovascular data were collected. Identical workloads of approximately 50% $\dot{V}O_2$ max were performed for both trials. Compared to placebo, caffeine significantly (as indicated by two-way ANOVA, $p<0.05$) increased systemic vascular resistance (425.97 vs 470.9 dynes/cm^5), stroke work (.0028 vs .0031 J/beat), systolic blood pressure (151.68 vs 164.74 mmHg) and mean arterial pressure (91.73 vs 98.91 mmHg), yet decreased HR (134.02 vs 127.4 b/min) and had no significant affect on minute work of the heart (0.214 vs 0.225 J/min). Caffeine did not significantly affect $\dot{Q}$, $\dot{V}O_2$, R or SV. No significant interactions were found for any variables, indicating the groups did not respond differently to the treatment. It was concluded that caffeine increased the cardiovascular stress of prolonged walking through an increase in vascular resistance, and that habitual caffeine use did not provide tolerance to this response.

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VALIDITY AND RELIABILITY OF HAND-HELD DYNAMOMETRY IN ASSESSING STRENGTH MEASURES IN NORMAL AND MENTALLY RETARDED ADULTS.

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The need exists for quantifying strength measures on special populations in both clinical and field settings. An instrument currently available to meet this requirement is the Nicholas Manual Muscle Tester (NMMT:a hand-held dyanmometer). To date, the validity and reliability of using a hand-held dynamometer in assessing strength measures in the mentally retarded population has yet to be established. The purpose of this investigation was to determine the validity and reliability of the NMMT when assessing strength measures in normal and mentally retarded adults.

Two groups of ten subjects(college males,mean age of 28.9 yrs;mentally retarded adults,mean age of 28.1 yrs.) were tested on two seperate days. Day 1 consisted of 3 maximal contractions on the Cybex II dynamometer for knee extension at 40 degrees and elbow flexion at 90 degrees. Mean torque values were converted into Newton-Meters for statistical analysis. Day 2 consisted of 8 "break"trials, administered by two trained hand-held dynamometer persons(4 trials), utilizing the NMMT on the same muscle groups and in the identical test positions. Measurements of individual moment arm lengths were made to convert NMMT strength scores into Newton-Meters. Cybex and NMMT test order, as well as tester order for the NMMT measures were counterbalanced among subjects.

Results of this investigation yielded high intratester reliability coefficients for the NMMT (r=.86 to .99), and the Cybex Dynamometer(r=.94 to .99), for both populations. High inter-tester reliability coefficients were also obtained between the two testers for both muscle tests and populations(r=.78 to .98). Pearson Moment Correlation coefficients between Cybex and NMMT measures ranged from .57 to .94.

In conclusion, in assessing the validity of the NMMT, moderate to high relationships were determined with the criterion measure for both populations. Reliablity indices of the NMMT were found to be acceptable for both populations.

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THE RELATIONSHIP BETWEEN BASAL METABOLIC RATE AND THE COMPONENTS OF BODY COMPOSITION IN ADULT MALES. Svoboda, Milan, Portland State University; Brodowicz, Gary R., Portland State University; Frankel, Herman, M., Portland State University; Cichoke, Tony, Portland State University; Fish, Brian, Portland State University; Polychronis, Jan, Portland State University; and Tipton, Greg, Portland State University.

The purpose of the study was to examine the relationship between basal metabolic rate (BMR), surface area (SA) and body composition in adult males. Fifty-nine male subjects (age = 26.9 ± 4.2 yrs; ht = 178.1 ± 7.1 cm; wt = 83.5 ± 13.9 kg; %fat = 14.5 ± 7.7%) were assessed for body composition by hydrostatic weighing using standard procedures; residual volume was measured using the revised oxygen dilution method. Since SA is commonly used to standardize estimates of BMR, the sample was selected to include individuals with similar surface areas who ranged in body composition from lean and muscular to overfat. BMR was estimated from resting oxygen consumption (VO2) using standard open-circuit procedures; subjects agreed to refrain from heavy exercise for 2 days and from eating for 12 hours prior to testing and were rested supine 35 minutes prior to data collection. The following correlations between VO2 and the various components of body composition were identified: $r = 0.50$ (ht); $r = 0.71$ (wt); $r = 0.53$ (SA); $r = 0.32$ (fat wt (FW)); $r = 0.73$ (fat-free wt (FFW)). A stepwise multiple regression equation for BMR was developed : VO2 (L/min) = .07415 + .002776·FFW (kg) + .001206·FW (kg) + .001757·age (yrs) ($R = 0.78$). Significant differences in VO2 ($p < .01$) were found among groups with low, medium, and high FFW, with and without adjusting for SA and FW via ANCOVA. Significant differences in VO2 ($p < .01$) were also found among groups with low, medium, and high SA but not after adjusting for FFW via ANCOVA. It was concluded that FFW is more strongly associated with BMR than SA in adult males and should be used in its prediction. These findings also suggest that exercise programs which enhance FFW may be important to persons interested in weight control.

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FORCE VERSUS POWER OVERLOAD SIMULATOR TRAINING FOR GYMNASTIC PRESS TO HANDSTAND.

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The press to handstand is one of the most important "common denominator" skills because it provides a broad array of carry-over elements to rapidly develop advanced all-around gymnastic techniques. The purposes of the study were (a) to modify a weight machine to simulate the movements of a press to handstand, (b) to train gymnasts on the weight machine fitted with a special handle, an optical encoder, and a digital recorder using either force or power training, and (c) to evaluate any change in the press to handstand performance with kinematic analysis and the formal appraisal of professional judges. The subjects were 18 male gymnasts who could hold handstands with perfect balance. Training began immediately after a pinnacle of gymnastics performance had been reached for league championships and continued for 10 weeks, 4 times weekly. Greatest-force training was slow, self-paced and subjects who successfully completed 5 sets of 5 consecutive lifts per training session were promoted one plate (31 N) for the next training day. Greatest-power-overload training required lifting at the greatest velocity possible and breaking both the single-set and the five-set power records in order to be promoted one plate for the next day. For strength, both groups increased beyond the .001 level. The analysis of covariance revealed no significant difference in the adjusted posttest means. For power, the force group did not increase significantly whereas the power group did, $p < .01$. For the actual press to handstand on the parallel bars, execution time increased significantly, thigh velocity and thigh acceleration decreased significantly, desirable changes, for both groups, $p < .01$. The judges' ratings increased 13.6%, $p < .01$, for the force group and 15.8%, $p < .01$, for the power group. For both groups, the rate of improvement averaged 1.5% per week. There were no significant differences between the groups, except in posttest power as noted above, the power group was superior. The data suggested that gymnasts trained to a pinnacle of performance with gymnastics coaching and gymnastics apparatus may be improved significantly in the press to handstand with either greatest-force or greatest-power-overload training utilizing a weight machine simulator. The observed improvements could raise individual scores 2.0 points and team scores 5.0 points. The significance may be gauged by the fact that at least four Olympic, four NCAA and one U.S.A. Championships were won by less than 0.5 point.

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PERCEIVED BARRIERS TO HEALTH BEHAVIORS: DIFFERENCES IN GROUPS DEFINED BY GENDER AND HIGH/LOW ENGAGEMENT IN HEALTH PRACTICES.

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The perceived barriers construct from the Health Belief Model has been among the best predictors of involvement in preventive health behaviors. This investigation sought to determine differences in perceived barriers to engagement in health practices in gorups defined by gender and level (Hi/Low) of engagement in health practices. A 21-item, 7-point Likert-type questionnaire, Perceived Barriers to Health Practices Inventory, and a 20-item Health Practices Survey was administered to 250 male (n=104) and female (n=146) undergraduate students at a major Midwestern university (M age = 20.9). Descriptive statistics, independent sample t-tests, discriminant analysis, and multiple regression procedures were used to analyze the data. The major barriers to practice health behaviors among this sample were lack of motivation, time, work responsibilities, lack of self-discipline, family responsibilities, and lack of money. Independent sample t-tests revealed that females scored significantly higher than males on the barriers of lack of time, work responsibilities and family responsibilities. Subjects who were low in their level of engagement in health behaviors scored significantly higher than the high level of involvement subjects on 15 of the 21 barriers. Significant functions emerged when discriminant analyses for groups defined by gender and groups defined by level of health practice were conducted. The level of health practice discriminant function analysis correctly classified 79.8% of all subjects. Multiple regression analysis indicated that the barriers of lack of discipline, lack of confidence in the benefit of the health practice, and addiction to a habit were negatively associated with total health practices (R^2 = .21). In addition the multiple regression analysis yielded seven barriers which significantly predicted involvement in stress reduction/exercise involvement health practices R^2 = .25). The results from this study indicate that there are differences in perceived barriers to health practices between groups defined by gender, and between groups classified by high or low levels of engagement in health practices. It is important that health education programs be sensitive to such group differences in perspectives of health practices.

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DENIAL OF PATTERNS OF ALCOHOL ABUSE AMONG SELECT UNIVERSITY STUDENTS.

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Denial often acts as a barrier to identification of self as a problem drinker and can delay the process of seeking assistance. Danovitch (1984) reported that only 15% of problem drinkers seek assistance even though more intervention services are now available. Haver (1985) suggested that client denial attributed to the failure to diagnose alcoholism in a group of women who were problem drinkers. Other authors have suggested that recognizing and addressing defensive denial are necessary components of effective alcohol abuse intervention and prevention programs (Leikin, 1986; National Institute of Alcohol Abuse and Alcoholism, 1985). This study investigated patterns of denial of alcohol abuse among 689 select university students. Ninety four percent reported that they did not have a drinking problem. However, 50% reported blackouts; 22% reported that friends and/or family had expressed concern over their drinking; 59% reported drinking three times a week or more, and when drinking, about 72 percent drank three or more drinks in a sitting; 57% had driven while intoxicated at least one time, and 21% had driven while intoxicated seven or more times. A forward stepwise regression analysis investigated the contribution of multiple variables that are indicative of alcohol abuse to the variance in identification of self as a problem drinker. Variables contributing significantly to the model include: reported inability to stop drinking when desired ($p<.0001$), reported neglect of personal responsibilities ($p<.0001$), reported feelings of guilt about drinking ($p<.0012$), and reported parents with alcohol abuse problems ($p<.05$). Other variables which were entered into the model, but made no significant contribution to R^2 include: report that friends/ family had complained about drinking, reported frequency of DUI, reported blackouts, reported siblings with alcohol abuse problems, frequency of alcohol use, and reported fighting while intoxicated. The model $R^2=0.08$ for statistically significant variables indicates that variables suggesting alcohol abuse were poorly associated with self-identification as a person with an alcohol abuse problem. This lack of identification is indicative of a widespread pattern of denial among the students studied. Possible reasons for this pattern will be discussed as well as clinical and prevention program implications.

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THE EFFECTS OF ALCOHOL INTOXICATION ON MOTOR PERFORMANCE IMPAIRMENT.

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Looking at alcohol nomograms and tables, which supply one BAC value for each body weight/ethanol dose combination, the implication is that individual BACs can be generally predicted for all persons under all drinking conditions. On the contrary, research has shown that there is substantial variability in the BACs reached by different persons even when dose per body weight has been controlled. The purpose of this study was to identify the pharmacokinetic and behavioral variables involved in the variability of Blood Alcohol Concentrations (BACs) and perceptual-motor impairment among a group of paid volunteers in a carefully controlled drinking situation. Sixteen (8 males and 8 females) ages 21-40 participated in the study. Variables included gender, age, body composition, rate of consumption, prior alcohol experience, rates of absorption and elimination, visual skills and perceptual-motor skills. The experimental design was a variation on a 2x2 factorial with repeated measures on the dose of alcohol. Males and females were randomly divided into two groups. There were two experimental sessions and all subjects took part in both sessions, i.e., single dose and double doses. Results from the study showed that the mean peak BACs for double doses and single doses were 0.106 g/100 ml and 0.075 g/100 ml, respectively. The absorption time (the end of alcohol intake to BAC peak) varied from 20 to 95 minutes for double doses, and from 20 to 75 minutes for single dose. Behavioral data revealed that depth perception was significantly impaired from both double- and single-dose conditions ($p<.01$). As expected, reaction time and anticipation time also increased. Furthermore, the variability of reaction time and anticipation time for both conditions was markedly increased suggesting that intoxication may be associated with erratic behavioral responses. Far vision and near vision were also impaired to various degrees. It is worth noting that biobehavioral responses tended to be impaired as soon as the BAC level reached 0.07 g/100ml level, even though most driving regulations set 0.10 g/100ml as the BAC level above which driving is illegal. Also, impairment was not linearly or proportionally related to the level of BAC once the BAC level reached 0.07 g/100ml. Probably the most interesting finding was that the same subject might exhibit different levels of impairment at a given BAC level, depending on whether the session was single or double doses. This suggests that the current BAC level is less a measure of impairment than is the total quantity of alcohol consumed.

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Attitudes Toward Sport Participation as a Function of Sex, Sport, and Level of Ability and Participation.

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The purpose of this study was to examine one's attitudes toward participation in sport. Specifically, the main focus was to examine differences in attitudes between males vs. females, team vs. individual athletes, and those competing at different ability levels. Athletes (n=247) from six NCAA schools ranging from Division I to Division III participated in the study. Athletes from the following sports: swimming, cross country, water polo, judo, soccer, gymnastics, and basketball were administered a paired comparison attitude toward sports participation questionnaire. Only athletes from sports programs where both males and females could be recruited were studied. The questionnaire contained twelve items representing attitudes drawn from Webb's Professionalization of Attitudes Scale. Items were rank-ordered based on frequency of occurrence. Kendall's tau was employed to obtain significant differences in attitudes between different groups. Testing was done at the $p < .05$ level of significance. There were three major findings. First, the prevailing attitude for both males and females was one of mastery over their sport, i.e. being able to perform up to one's potential. Secondly, basketball players had a more professional attitude (i.e. the importance of winning) than the other athletes. It is hypothesized this may be attributed to the outside emphasis placed on collegiate basketball programs compared to the other sport programs examined in this study. Finally, four distinct attitudes were identified. They were: 1) to perform up to your potential, 2) to win, 3) to enjoy oneself both for the sport itself as well as for the social aspects surrounding the sport and, 4) to be fair.

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AN ANALYSIS OF LESSON CONTEXT AND LEARNER INVOLVEMENT PATTERNS DURING HIGH SCHOOL ACTIVITY UNITS: A CASE STUDY

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Academic learning time in physical education (ALT-PE) is a reliable measure of the amount of time students are successfully engaged with relevant motor activities (Siedentop, Tousignant, & Parker, 1982). Most ALT-PE research has focused upon individual lesson settings and the use of means to describe learner behaviors. The purpose of this study was to use a case study approach to describe the motor learning opportunities as they occur for the duration of multi-lesson units for high school basketball, gymnastics and dance. Four trained observers collected data with the ALT-PE instrument while observing the same instructor teach all three units. Results indicated that motor learning was emphasized with over 57% of each lesson devoted to subject knowledge and motor activities. Little emphasis was placed on knowledge-related activities as compared to motor and general management activities. Gymnastics lessons devoted time to skill practice and combinations of moves early in the unit (44 to 79% of lesson time) and ended with skill practice (84%) emphasized on the test day. Students were involved primarily in planning routines and preparing to start practice (52 to 76%) except on skill test day when waiting and performance was seen (55%). Dance lessons devoted time to combinations and practice of steps (44 to 56%) except for the last lesson which emphasized performance of dances (56%). Students were involved primarily in cognitive and waiting behaviors for most of each lesson (42 to 52%). Basketball lessons primarily focused on skill practice (29 to 37%). Early lessons involved more game (11 to 26%) than scrimmage (0 to 3%) activities whereas later lessons included more scrimmages (18%). Students were involved primarily in cognitive, waiting and getting ready behaviors (56 to 61%). Important questions about motor learning opportunities arise when entire units are analyzed. The use of means based on single lessons may obscure the complex patterns of context and student activity within a unit. Understanding the patterns of lesson context and learner behaviors as a unit progresses may provide a perspective which will permit implications of research to be more specifically applied to the pedagogical practices involved in teaching units.

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THE EFFECT OF A PLACEBO ERGOGENIC AID ON MUSCULAR ENDURANCE, STRENGTH, AND SELF PERCEPTION.

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The purpose of this study was to determine the impact of a placebo ergogenic aid on isokinetic leg strength, isokinetic leg endurance, and changes in self perceptions of healthy college women. The participants (N=15) ranged in age from 18-23 and were enrolled in a twice-weekly physical conditioning program. The participants were informed of an ergogenic aid that was developed to improve performance in physical activities. The ergogenic aid, however, was simply a placebo (#3 Lactose). Following a description of the contents of the ergogenic aid, the subjects were informed to the procedures and testing protocol and a consent form was signed by each subject. Subjects then completed the Fitness and Exertion Questionnaire and were individually tested for isokinetic leg (quadriceps and hamstrings) strength and endurance using a Cybex II isokinetic testing device. Subjects then received seven ergogenic aids to be taken once-a-day for the next week. After seven days, the subjects were tested again. During the final week of the study the subjects were not supplied with the ergogenic aid. Again, one week later, the subjects were tested. Following the statistical analyses of the data the participants were informed of the results and the true identity of the ergogenic aid. T-tests of the data revealed significant values for changes in both strength and endurance ($p<.05$). An increase in quadriceps strength was found when comparing the 1st and 2nd weeks. Hamstring strength showed a decrease between the 2nd and 3rd weeks. Quadriceps endurance increased from the 1st to the 2nd week and decreased from the 2nd to the 3rd. Hamstring endurance also decreased over the 3rd week. The Bonferroni technique was used to adjust the experimentwise alpha. These results indicate a placebo effect. Specifically, an increase was observed in quadriceps strength and endurance while the placebo was used. The results further indicate that the elimination of the placebo is associated with decreased hamstring strength and both quadricep and hamstring endurance. The performances indicate that the subjects were less capable without the placebo ergogenic aids. Regarding responses to the Fitness and Exertion Questionnaire, the most significant changes were between the first and second weeks. The t-tests revealed significant increases ($p<.05$) in participants' feelings of self esteem, social involvement, and academic abilities. Consequently, the administration of the placebo ergogenic aid is linked to greater feelings of adequacy.

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PREVALENCE AND FACTORS ASSOCIATED WITH DRUG ABUSE AMONG TEENAGERS: WHAT SCHOOLS CAN DO ABOUT IT. Mohammad R. Torabi, Indiana University.

The seriousness of drug abuse among high school students has been increasingly obvious in our society. It is not clear, however what specific factors are associated with this destructive behavior and what schools can do about it. The purpose of this study was to investigate the prevalence of various drug abuse in middle high schools and what specific school-related functions are associated with the abuse of drugs. A survey questionnaire consisting of 120 items was constructed for this purpose. The questionnaire includes a likert type attitude subscale toward drug abuse as well as structured sets of items on demographic background, participation in various co-curricular functions, and the use of various drugs. The questionnaires were administered to a large sample of grades 7-12 in four purposive selected school corporations in a midwestern state. The collected data were subjected to univariate and multivariate statistical analyses. Over 10,000 students anonymously completed the questionnaire. It was found that a significant number of students have used drugs, from tobacco to heroin, in various degrees by age groups. The most common ones are alcohol, marijuana, tobacco and amphetamines. There was a significant relationship between the use of tobacco and or alcohol with other drugs. Strength of association was stronger for alcohol, with marijuana, amphetamines, and inhalants. Tobacco use was strongly related to marijuana, alcohol, LSD, amphetamines, hallucinogens, and narcotics. There was also a significant relationship between various drug abuses and students' participation in co-curricular activities. Among other findings, there were significant differences between drug abuse and non-drug abuse groups with regard to students' attitudes toward drug use. In conclusion, students' involvement in co-curricular activities, along with drug education emphasizing attitude modification, may be helpful in drug abuse prevention.

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THE UTILITY OF BIOELECTRICAL IMPEDANCE ANALYSIS(BIA) ACROSS LARGE FLUCTUATIONS IN BODY WEIGHT.

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The utility and accuracy of bioelectrical impedance analysis(BIA) with significant obesity is unclear. Furthermore, the response of BIA to significant weight reduction has not been established. This study used 10 females tested at baseline and 30d following weight loss precipitated by a very low calorie diet(520 kcal/d). Body composition was measured by hydrostatic weighing(HW) with residual volume determined by oxygen dilution in duplicate. Immediately following, body composition was measured by BIA using an Electrolipograph supplied by Bio/Analogics, Inc., with methods according to the manufacturer. For HW at baseline, body wt was 102.2±20.9kg and body fat, LBM, and fat wt were 44.5±5.6%, 55.3±6.6kg, and 46.02±15.3kg, respectively. For BIA at baseline, body fat, LBM, and fat wt were 38.5±3.8%, 62.4±10.4kg, and 39.8±11.1kg, respectively, and showed significant difference from HW ($p<0.05$). The correlation coefficient between HW and BIA was high($r=0.89$). Body wt at 30d was 93.3±18.6kg and body composition for HW was 42.4±6.6% fat, 52.5±5.1 kg LBM, and 40.4±14.5kg fat wt. Body composition for BIA was 37.3±4.3% fat, 58.0±8.8kg LBM, and 35.3±10.5 kg fat wt and showed significant difference from HW ($p<0.05$). The correlation coefficient between HW and BIA at 30d was $r=0.89$ which was unchanged from baseline. This study suggests that BIA varies accordingly with HW at baseline and with weight loss; however, when HW is considered the criteria is consistent underestimation of body fat is shown by BIA.

Supported by Health Management Resources, Boston, MA.

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ATTITUDES OF CHILDREN IN INTEGRATED AND SEGREGATED PHYSICAL EDUCATION PROGRAMS TOWARD PEERS WITH DISABLING CONDITIONS.

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Most attitude theorists agree that contact is an important concept in attitude formation. Contact theory posits that contact between individuals with differences tends to produce changes in attitude between those individuals. The direction of change depends largely on the conditions under which contact has taken place. These conditions can be conceptualized within three major categories (a) environment, (b) characteristics of interactors, and (c) nature of contact. The purpose of this study was to determine whether children who participated in an integrated physical education program have different attitudes toward peers with disabling conditions when compared to children who participated in a segregated physical education program. Peer Attitudes Toward the Handicapped Scale (PATHS) was administered to 478 children without disabling conditions, ages 9- to 12-years old, to determine if there were attitude differences. The mean scores for PATHS total grouping on setting, gender, age, and years attending an integrated physical education setting were compared using separate one-way analyses of variance. Multivariate analysis of variance was conducted to determine whether children in a integrated physical education program score differently on the physical, learning, and behavior subscales. It was concluded that more similarities than differences exist between the attitudes of children attending integrated and segregated physical education programs. Differences occurred however, between the genders. Girls had more favorable attitudes toward peers with disabling conditions than did boys. In addition, the order of preference for all of the children, from most favorable to least favorable was physical, learning, and behavior disabling conditions. Discussion will center around contact theory and whether integrated physical education programs are currently meeting "favorable" conditions to produce positive attitudes toward peers with disabling conditions.

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MOTOR SKILLS INVENTORY; DETERMINING THE MINIMAL CONDITIONS FOR TESTING YOUNG CHILDREN.

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Elementary and adapted physical education instructors along with motor development clinicians frequently employ observation as their primary assessment strategy. Most observation systems are critized because of poor objectivity resulting from a lack of clearly defined performance criteria. Werder and Bruininks (1988) have recently published The Body Skills Motor Development Curriculum for Children which includes the Motor Skills Inventory (MSI). The MSI provides a system for evaluating 29 motor skills common to childhood. Each skill is divided into three development steps in a criterion-referenced format to assess the quality of the child's performance. The rudimentary level is conceptualized as the early level of skill acquistion where the child performs awkwardly. At the functional level, the child can perform most of the component movements but lacks smooth integration of the total pattern. The mature level requires the child to perform all the component movements in a coordinated pattern. The MSI has been statistically equated to the Bruininks-Oseretsky Test of Motor Proficiency (Bruininks, 1978). The standardized procedures for each skill allow students three trials to pass a developmental level. The test designers state that "correct scoring depends upon the examiners observation and judgement in relationship to the scoring criteria." The purpose of this study is to determine the conditions of observation required to obtain a minimal level of reliability (.80), given observers that undergo informal self-instruction with the MSI. Three motor skills were selected from the MSI: kick, jump, and throw. Sixteen children were observed by 25 raters while performing 10 trials of each skill. Performances were videotaped to facilitate data collection. A completely crossed ANOVA design was used with all factors assumed to be random. Generalizability and decision theory were applied in this analysis. Variance components and generalizability coefficients were calculated for different conditions of observation. Results suggest that given raters that purchase the MSI and undergo informal self-instruction, which is very common, the conditions of testing should be different for each skill. To obtain at least a .80 level of reliability under these conditions would necessitate averaging ratings of 2 observers over 5 trials for the kick, 2 observers and 8 trials for the jump, and 1 observer and 4 trials for the throw. Based on these results, it appears that the MSI will require more than informal training to expect a reasonable level of reliability under realistic conditions (1 observer and 3 trials).

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A LONGITUDINAL STUDY OF TREADMILL STEPPING IN INFANTS WITH DOWN SYNDROME. Dale A. Ulrich, Beverly D. Ulrich, and Douglas H. Collier, Indiana University.

Research consistently indicates that infants with Down Syndrome (DS) display a significant delay in the emergence of motor behaviors such as walking when compared to their normal peers. Further, the gap between DS infants and their non-affected cohorts increases with age, especially in the locomotor domain. Recent experiments have demonstrated that normal infants possess the ability to move their legs in alternating step-like patterns several months before they walk, given a supportive context. Thelen and colleagues (Thelen & Ulrich, 1989; Thelen, Ulrich, and Niles, 1987)provided such a context, that of supporting the infant upright so their feet rest on the moving belt of a small motorized treadmill. Their research suggests that normal infants are capable of producing well-coordinated, alternating steps by 3 or 4 months of age with a rapid increase for several consecutive months. In this investigation, we were interested first in determining if the treadmill stimulus would enable DS infants to produce alternating steps. If they could produce this pattern we wanted to know if they showed developmental profiles similar to those of normal developing infants. Nine babies with DS (aged 6 months to 11 months) participated in this mixed longitudinal study. Each monthly session consisted of the following assessments: (1) 8 treadmill trials with the belt moving at 0 m/s (baseline), .1 m/s, .15 m/s, and .2 m/s; (2) administration of the Bayley Scales of Motor Development; (3) range-of-joint motion in the legs; (4) 15 anthropometric measures. The treadmill trials were videotaped forsubsequent analysis of stepping pattern (alternating, single, double or parallel) and frequency. Based on the 7 infants that were able to complete the study, our results reveal several findings. Infants with DS are capable of producing alternating steps while held upright on the treadmill long before they attempt to walk independently. This behavior emerges significantly later when compared to normal babies. Individual profiles generally suggest that the subject's step-pattern repertoire was increasingly dominated by alternating steps as age increased. With age, the frequency of steps increased and the proportion of total steps taken which were classified as alternating also increased. These results are similar to those found by Thelen (Thelen & Ulrich, 1989) with infants not affected by DS. Potential explanations for the delay in the emergence of this precursor to independent walking will be presented.

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PHYSICAL FITNESS TRENDS IN LARGE POPULATION OF 6-11 YEAR OLD CHILDREN: 1980-1989.

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Trends in physical fitness have previously been reported on the basis of extrapolation from two points separated by a few years. The potential errors inherent in this practice are universally acknowledged. We monitored the physical fitness status of children enrolled in elementary schools participation in the Chrysler-AAU Physical Fitness Program for ten consecutive years, 1980-1989. Samples averaging approximately 1000 students per year for each age group were randomly drawn from test data submitted by teachers from all 50 states. Fitness estimates were based on four required test events: 1) Situps; 2) Pullups; 3) Sit and Reach; 4) Endurance Run. Distance of the endurance run varied from 1/4 mile (6 and 7 years) to 3/4 mile (11 years). Heights and weights of all subjects were also obtained. Means and standard deviations were computed for all events by age and sex. Year to year differences for each event and for both sexes were analysed by means of MANOVA with post hoc comparisons where appropriate. Strength and Muscular Endurance: After an initial spurt, Pullup scores for boys improved gradually across the decade for all age groups. Flexed Arm Hang for girls demonstrated mixed patterns of improvement with most groups declining in the middle of the decade followed by recovery and plateaued scores from '87 to '89. Bent Knee Situps improved modestly but steadily acrosss the decade for both sexes and all age groups. Flexibility: Scores for the Sit and Reach test were available only since 1986. Both boys and girls in all age groups demonstrated a sharp first year improvement followed by a three year plateau. Familiarity with the test may have been an important variable. Circulorespiratory Endurance: All groups, both boys add girls, demonstrated a steady, significant increase in time required to cover the standard distances. These decrements in performance ranged from 0.4% to 14%. Height and Weight: Mean body weights for all groups exhibited a gradual increase across the decade with the greatest increases seen in the older groups. No significant changes in heights were observed. Decrements in endurance run performance were positively related to increases in body weight.

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PHYSICAL FITNESS TRENDS IN A LARGE POPULATION OF12-17 YEAR OLD CHILDREN: 1980-89. Wynn F. Updyke, Michael Willett, Jean Burke and Loretta Sollars. School of HPER, Indiana University.

This study was designed to examine year to year variations in the physical fitness status of a large population of American youngsters, aged 12-17, across an entire decade. Subjects were students enrolled in schools participating in the Chrysler-AAU Physical Fitness Program in all 50 states. Samples averaging approximately 1000 students per year per age group were randomly drawn from test data submitted by teachers who administered the tests. Test events on which fitness estimates were based included: 1) Bent Knee Situps; 2) Pullups or Flexed Arm Hang; 3) Sit and Reach; 4) One Mile Run. Also measured were heights and weights in addition to several optional items from the 11 event test battery. Trends in test performance for all ages and both sexes were analysed by means of MANOVA with appropriate post hoc comparisons. Since most schools in the sample did not require physical education after grade 9, students aged 15, 16 and 17 were combined into a single group. Results revealed that strength and endurance of muscle groups in the arm and shoulder girdle, as well as trunk and hip flexors showed modest improvement over the decade for most age groups and both sexes. Girls' Flexed Arm Hang scores exhibited a "gull wing" pattern with lowest scores in mid decade. Both boys and girls showed a sharp first year improvement in the Sit and Reach test (first introduced in 1986) followed by a plateau. Most natable was the steady, substantial decline in cardiorespiratory endurance seen in both sexes and all age groups. Overall declines averaged nearly 10%. An increase in body weight paralleling the decline in endurance run times suggests a cause and effect relationship. It is concluded that the aspects of physical fitness considered most intimately linked to the risk of degenerative disease have deterioriated significantly in this population over the course of the 1980s.

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CONSERVATIVE AND NEW LEFT THEORIES OF SPORT - A CRITICAL ANALYSIS

"At the origin of the great ideological division between Left and Right which has given shape to the modern political era, there stands a riddle of apparently scholastic obscurity: Which came first in human prehistory - labor or play?" (Hoberman, Sport and Political Ideology, p. 23) While the Leftist thinkers emphasize the primacy of labor, conservatives posit the primacy of the ludic element in life. Both groups operate from fairly different assumptions about man and life. Their viewpoints regarding sport range from very positive, optimistic interpretations to fairly negative, pessimistic analyses.

The richness and contradictions of these explanations of sport and play result of a formal distinction between work and "not- work." The understanding of play as "not-work" legitimizes the exclusion of social reality (work) from the conservative theories of sport as presented by Huizinga, Novak, Guttmann, and Lenk. Contrary, the investigation of sport among New Left thinkers (such as Brohm, Rigauer, Vinnai, Rittner, Gruneau, Hargreaves) reflects the view that sport has to be understood as a social phenomenon that requires sociological and political analysis.

My main criticism against both categories of thinkers is that they fail to realize that the realm of sport can neither be explained solely through economic and social relations in society (as the New Left argues), nor merely as an autonomous realm of freedom (as the conservatives argue). Both major views of sport fall short of their critical attempt to comprehend sport. Hence, we need some sort of theory that better explains the degradation of sport and how it can appropriately be rescued.

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THE ROLE OF TRANSFORMATIONAL AND TRANSACTIONAL LEADERSHIP BEHAVIORS ON SUBORDINATE PERFORMANCE AND SATISFACTION. Carolyn Vos Strache, Pepperdine University; Rachel Novak, Pepperdine University

Dynamic leadership is generally considered to be a key aspect for the achievement of success in any group effort. Bass (1985) and Burns (1978) introduced leadership paradigms which examine both transactional and transformational leadership. Burns (1978) conceptualized the transformational leader as one who motivates followers to work for transcendental goals and for higher-level self actualizing needs, rather than having a simple exchange relationship with his/her followers. Changes in subordinates caused by charismatic and inspirational leadership have not received adequate attention in the literature. Although coaches are often viewed as charismatic leaders, leadership studies in the sports setting have not addressed the role of transformational leader behaviors. The question of interest is how do transactional and transformational factors affect player performance and satisfaction. Specifically, how does transformational leadership contribute in an incremental way to extra effort, satisfaction with the leader, and subordinate performance beyond expectations. A second question of interest is how leadership behaviors differ in situations of differing levels of stress. Chelladurai and Haggerty (1978) proposed a normative model of decision styles in coaching and identified time pressure to make decisions as one of the attributes relevant to the athletic context. Hersey and Blanchard's Tri-dimensional Leader Effectiveness Model (1982) suggests that no one single leader behavior is appropriate in all situations. Time demands during stressful periods do not permit talking things over or explaining decisions. Subjects in this study were 354 high school basketball players who attended the Jim Harrick Basketball Camp. Instruments used were the Leadership Scale for Sports, Multi-factor Leadership Questionnaire, stress, performance, and satisfaction questions. Players indicated that the greatest source of stress during games and practice was caused by their coach and the players themselves. Both transactional and transformational leader behaviors were found to influence player satisfaction and performance. Transactional and transformational subscales were highly correlated thus preventing the unique contributions of each factor from being determined. Future research must identify a procedure to separate the unique contributions of transactional and transformational leadership qualities.

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HEALTH SCREENING IN MISSOURI SCHOOLS

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Health appraisal is an integral part of the school health program. Interestingly, a large number of states have been reluctant or unable to mandate health appraisal in schools. Missouri is one of 23 states in which there is no legal requirement to screen children for health defects. The purpose of this study was to determine what health screenings are conducted in Missouri schools, how often, and by whom? The study sample was comprised of every school in eight Missouri counties. Questions asked of each school regarding screening methods were designed with the aid of the Missouri State Department of Health. The response rate was 100%. Fifty-one percent of the schools conducted physical health assessments (blood pressure checks, height and weight comparisons, podiatric assessments, etc.). The grades most commonly screened included, kindergarten, first, third, fifth, seventh, tenth and twelfth. According to the data collected, of the 127 schools in the study, 116 or 91.34% conducted vision screening. Kindergarten, third and fifth grades were the ones most commonly screened for vision defects. Ninety-one percent of schools conducted auditory screening. Kindergarten, first, fifth and seventh grades were the ones most commonly screened for hearing problems. Almost 93% of the schools conducted scoliosis screening. Grades five through nine were most commonly screened for scoliosis. Interestingly, more schools conducted scoliosis screening than any other health appraisal procedure. Only 36 (28.35% of the sample) schools conducted dental screening. The grades most commonly screened included kindergarten, third, fifth and sixth grades. Based upon the results of this study, many inadequacies exist in Missouri schools regarding health screening. Less than 28% of Missouri schools conduct comprehensive health screenings. Approximately seven percent of the schools conduct absolutely no health screenings. Many schools test for only one or two possible health impairments. In schools where they were available, health screenings were conducted by either school or public health nurses. However, owing to the paucity of nurses, teachers and laypersons were often designated as test administrators. Few of the schools surveyed, utilized the services of health care specialists, such as physicians, dentists, audiologists or optometrists. Another study finding indicated little inter-school consistency in terms of how often screening was conducted or by which grade level(s).

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A DESCRIPTIVE STUDY ON THE USE OF FEEDBACK BY AN EXPERIENCED BALLET INSTRUCTOR. Diane Walker, Karen Mullen, & Karyn Nelson, University of Idaho.

Currently, pedagogy researchers are identifying behaviors and cognitions of effective, experienced and/or expert teachers to determine variables which influence student learning. This research is limited in physical education and relatively unexplored in the dance setting. The present study assessed the incidence of selective feedback (FB) statements provided by an experienced teacher of a nationally recognized ballet company in beginning and advanced ballet classes at the university level. The teacher had 20 years of dance experience as both performer (with Joffrey Ballet and American Ballet Theatre) and instructor and studied in a Russian dance style. The specific purposes of this study were to examine: (1) the rate of selective FB (general-positive, general-negative, corrective-specific, and specific-positive) in each lesson; (2) the variation in frequency of FB across 5 weeks of instruction; (3) the variation in frequency of FB during each lesson; (4) the distribution of FB to low-, average-, or high-skilled students; and (5) the comparative incidence of FB during beginning and advanced level ballet classes. Each lesson over a 5 week instructional period was videotaped. Three trained observers independently identified and scored FB statements for each lesson with regard to type and distribution of feedback. Inter- and intrarater reliability was established and maintained throughout data analysis at .87 and above. Descriptive statistics were used and data were expressed as FB per minute of instruction. Corrective-specific was the predominant type of FB given by the instructor to both Ballet I and Pre-professional Ballet students. General positive was the second most frequently used type of FB. In both classes, the instructor gave more individual FB than to the whole class. Whole class FB was given the second most often to Ballet I students, whereas the instructor gave FB to small groups more often in the Pre-professional class. Individual FB was given about equally to the low- and average-skilled students in Ballet I. Pre-professional Ballet, however, showed a linear increase in frequency of FB with increasing skill levels. No distinguishable pattern emerged in the frequency or type of FB given across the 10 lessons of instruction for either class. The amount of FB given differed during various segments of each lesson. These differences reflected changes in class activity. The frequency of FB decreased during the more complicated portions of the class and increased during segments of the lesson which were devoted to skill refinement.

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EFFECT OF KNOWLEDGE ON TEACHERS' INTERACTIVE THINKING DURING THROWING INSTRUCTION.

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The purpose of this study was to describe how knowledge of subject matter (overhand throwing) and of throwing-specific instructional strategies influenced teachers' interactive thinking. Eight kindergarten classroom teachers with high generic teaching skill competence taught a 6-week overhand throwing unit to the children (N=150) in their intact classes. Generic teaching competence was verified with the Teacher Assessment and Development System-Meritorious Teacher Performance Form. Prior to the unit, four of the teachers were randomly assigned to a 4-hour knowledge training program. The other four teachers served as controls (underwent no knowledge training). The training focused on concepts, research literature, and instructional strategies related to overhand throwing technique and development. A knowledge assessment administered after training confirmed that the four trained teachers were more knowledgeable than the four controls. On three occasions during the unit, all teachers were videotaped while presenting throwing lessons. Stimulated recall interviews were then conducted after each videotaped lesson. The interviews were audiotaped and transcribed. An adaptation of a system developed in the South Bay Study (McNair & Joyce, 1979; Morine-Dershimer, 1979) was used to code teachers' thoughts during instruction. This system allowed the researcher to classify and code teachers' thoughts into four major areas (decision, concern, information source, awareness). Intercoder agreement of .85 or better was demonstrated between two trained coders. Additionally, the overhand throwing concepts within the teachers' thoughts were identified and coded (intercoder agreement = .98). The thoughts and knowledge concepts (frequencies and percentages) elicited by the knowledge-trained and control teachers were described and compared. The most important findings revealed that knowledge influenced the skill-related concerns and the visual cues that the teachers focused on during throwing instruction. The knowledge concepts that the teachers acquired during training formed the basis of many of their thoughts, influenced their decision-making, and affected the learning-related instructional strategies that they implemented. The knowledgeable teachers were 11 times more likely to implement teaching strategies directed toward specific developmental body actions. It was concluded that the knowledgeable teachers made higher quality decisions and were better able to select instructional strategies which focused on the most important aspects of the subject matter.

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CARDIOVASCULAR HEALTH OF OLDER MIDDLE-AGED MEN DURING 20 YEARS OF PHYSICAL CONDITIONING.

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Cardiovascular disease (CD) and risk factors (RF) for coronary artery disease (CAD) were observed in 15 men (20th yr age=64.8±7.2 yr) who had engaged in continuous dynamic exercise for 20 years (20 yr range; fq=2-6/wk; dur=20-90 min; int=60-95%). ANOVA: $\dot{V}O_2$ max decreased after the 15th yr (p=0.05); exercise patterns decreased after the 18th yr. No significant changes in blood pressure (125.7/78.0+17.5/6.9 to 124.7/79.9±13.7/10.3 mmHg) or total cholesterol (TC) (206.7±39.8 to 205.4±32.1 ml%) over the 20 yrs. Hypertension (n=2) and hyperlipidemia (n=2) were present prior to the study; 2 men had TC/HDL ratio > 5 at 20th yr. Smoking history was 12.0+12.6 pack years for 5 men. Family history (n=2), diabetes (n=1), and obesity (n=1) was also present throughout. ECG abnormalities developed (n=7) over the 20 years; most occurring in men > 65 yrs old. Ten men had no RF, two had single RF, and 3 had multiple RF. More men developed orthopedic problems than CD (7 vs 5) over the 20 years. In summary, major risk factors did not change during the 20 year conditioning program and evidence of CAD (n=2) was found only in men with multiple RF >65 yr old.

Funded by the San Diego State Adult Fitness Program.

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AN EXPERIMENTALLY-DETERMINED SPACE FOR THE STUDY OF MULTILIMB COORDINATION.

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The purpose of this paper is to provide a case for the use of "relative torque space" (i.e., torque-torque plots) for the study of multilimb coordination. Our argument stems from the following: 1) the observation that current measures of coordination appear to lack a principled rationale for their use, 2) the conviction that the dynamic nature of interlimb interactions is excluded by these measures, and 3) converging lines of evidence suggesting that torque magnitude influences the degree of interlimb attraction. A number of variables have been used to examine issues of multilimb coordination. Primary among these have been interlimb timing relationships. These have often consisted of the relative temporal location of discrete "landmarks", typically movement reversal points. The timing of the landmarks is indeed critical for successfully performing a variety of actions (musical skills and coincident timing tasks, for example). But although they provide convenient and useful measures, they fail to capture the continuous, dynamic properties of multilimb coordination; limb trajectories are ignored entirely. In contrast, it is the form of spatiotemporal patterns that appears to determine the ease with which simultaneous limb movements may be performed. Bilateral movements of disparate spatiotemporal patterns are extremely difficult to produce, and tend to be drawn towards "coupling" in space and time. Angle-angle diagrams, or "relative motion plots", provide a more continuous measure of interlimb movement relationships. But the choice of joint angles to dimension the space appears to be somewhat arbitrary. Other kinematic or kinetic variables may prove useful as well. We have previously demonstrated, in two independent investigations, that the magnitude of joint torque required to generate the more complex of two concurrent trajectories influences bimanual coupling independent of kinematics. In dynamic terms, one source of interlimb attraction appears to be kinetic in nature. This suggests that relative torque space may be an appropriate alternative to more traditional measures of multilimb coordination. The use of continuous trajectories such as these is especially useful for determining qualitative, topological characteristics like changes in interlimb phase relationships.

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AIDS AND CONTRACEPTIVE BEHAVIOR: MALE AND FEMALE DIFFERENCES.

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The purpose of this study was to measure the differences between male and female college freshmen in their sexual behaviors related to AIDS and contraceptive use. In Spring 1988, data were collected from a non-randomly selected sample of 1,283 college freshmen attending thirteen universities. Results showed that more males (81%) than females (67%) reported being sexually active, and more males than females became sexually active at an earlier age. Of those subjects who were sexually active, 27% of the males and 21% of the females used no contraception at first intercourse. An additional 23% of the males and 24% of the females used an ineffective method. For those students who continued to be sexually active, 75% of the females and 82% of the males reported using an effective method of contraception during intercourse. Only 13.3% of the males and 10.1% of the females were currently using either no method or an ineffective method of contraception (withdrawal or rhythm). Results from the AIDS section of the survey indicated that there were no significant male-female differences on any of the 16 knowledge items, and that almost equal numbers of males (53%) and females (55%) perceived themselves as not being susceptible to AIDS. Almost one-half of both groups believed that the cause of AIDS was unknown, and that a new AIDS vaccine had recently been developed. An unexpected finding was that only 29% of males and 26% of females had any AIDS education in high school ($p>.05$), since most states have for at least two years, mandated that AIDS instruction be included in the curriculum. Although there were few significant differences between male and female contraceptive behaviors or AIDS related data, some distinctions can be made. The percentages of sexually active males and females is consistent with the literature. However, the age at which each gender became sexually active was somewhat different. A significant difference was found between males in an earlier national study who were sexually active at age 16 (30%) and males in the present study who were active at age 16 (44%), ($p<.05$). For the females in the national study, 15% were sexually active at age 16, vs. 32% in the current study which was also significant at $p<.05$. Since this sample of college freshmen was an academically select group and had been exposed to several years of media coverage, it was expected that they be knowledgeable about AIDS. It was unexpected that they would perceive themselves as not being susceptible to AIDS. Clearly, if we are going to change adolescent high-risk sexual behaviors, a comprehensive AIDS education program, sensitive to male-female differences and special needs, should be implemented.

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Body Height: Effect on Metabolic Cost during the Bruce Treadmill Test. T.E. Ward, B.C. McKeown and C.L. Hart. The University of Texas at Arlington, Arlington, TX 76019

A problem peculiar to the Bruce Treadmill Test is the varying speeds at each stage leading to possible performance difficulties. Particularly, during the fourth stage the speed (112.6 m/min) allows subjects to walk or run, which may lead to inaccurate VO2 estimates. Workman and Armstrong (J. Appl. Physiol. 61(4): 1369-1374, 1986) suggested that the VO2 of shorter individuals is greater than taller subjects at all speeds of walking. This study examined the effects of height on various physiological functions of 27 healthy trained males ($\bar{X}$ age=39.1 ± 10.7 yrs) during two modes of the Bruce Treadmill Test. For data analysis, the subjects were subdivided by height to represent a short group (SG), n=13, and a tall group (TG), n=14. The groups had significantly different ($p \leq 0.01$) physical characteristics ($\bar{X}$ ± S.D.) of body height (SG=174.5 ± 2.8 vs TG=185.0 ± 4.7 cm) and body weight (SG=72.9 ± 6.5 vs TG=83.5 ± 6.8 kg). Each subject performed two randomly ordered GXTs to exhaustion as follows: 1) Bruce TM while running stage IV (TM Run), and 2) Bruce TM while walking stage IV (TM Walk). During each stage of the GXTs the subjects were monitored for HR, BP, VE, and VO2 (l/min and ml/kg/min). Peak values and time to exhaustion were also determined. Utilizing independent t-tests, no significant differences ($p \leq 0.05$) were observed between the two groups for peak or submaximal measures of HR, BP, and relative VO2 (exception: stage IV min 1; TM walk TG=39.0 ± 3.1 vs SG=41.5 ± 2.2; TM Run TG=39.8 ± 2.5 vs SG=42.1 ± 3.2 ml/kg/min). The TG, however, exhibited significantly higher submaximal and peak values of absolute VO2 and VE than the SG. These differences might be expected due to the absolute difference in body size. It was concluded that a significant height difference of 10.5 cm did not significantly effect VO2 during the Bruce Treadmill Test. Shorter subjects do appear to have a greater initial metabolic cost when walking and running at a speed of 112.6 m/min, but these subjects seem to adjust and consume oxygen at equivalent levels of taller subjects after the first minute.

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A SPECTRUM-VELOCITY PROTOCOL FOR MEASURING SQUAT PERFORMANCE IN YOUNG WOMEN.

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An investigation was conducted to determine the reliability of standardized squat tests in which peak force and peak power were measured at multiple velocities, and to assess their association with vertical jump performance. Within a 48-hour period 23 young adult females twice performed a standardized vertical jump and concentric-only isokinetic squats at six preselected velocities. A counter-balanced design was utilized so that subjects were tested on the individual components of the performance battery on a randomly rotated basis. The vertical jump was performed using the nondominant hand, a vertical-only upper body motion, and no preliminary steps. The best of three valid attempts was reported in inches as the vertical jump score (VJI). The VJI was also converted into an average power score in ft-lb/sec (VJAP) using the Lewis formula. Isokinetic tests were conducted with an Ariel 4000 Multifunction CES using the following bar velocities: 8, 20, 32, 44, 56 and 68 deg/sec. Peak force (PF) and peak power (PP) measures were derived from the highest value attained during a 3-repetition set. Intraclass correlation coefficients were calculated to indicate the reliability of the various protocols. Reliability coefficients for VJI and VJAP were .97 and .98, respectively. Reliability coefficients for the six test velocities ranged from .90 to .96 for PF and from .88 to .97 for PP. The association between squat performance and vertical jump performance was calculated using Pearson product-moment correlations. Correlation coefficients for squat PF at six different velocities and VJI ranged from -.26 to .11 while the correlations for squat PP and VJAP ranged from .10 to .22. These results indicate both expressions of vertical jump performance as well as all of the standardized spectrum-velocity squat protocols as used in this study for measuring PF and PP were reliable. On the other hand, virtually no association existed between vertical jump expressed as either VJI or VJAP and squat performance expressed as either PF or PP, respectively. It seems clear that factors other than those measured in this investigation must be responsible for the variability in vertical jump performance by young women.

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RPE INFLUENCED BY EXPERIMENTAL DESIGN INTERACTION.

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The selection of an experimental design may not be a straight forward assumption, particularly regarding perception. The problem of confoundment due to the influence of the experimental design on the independent variable (IV) as a source of variance has been examined in several areas of psychology (Poulton, 1982) but has not addressed ratings of perceived exertion (RPE). The drawback of testing such a theory is the additional number of subjects required to compare the within-subjects (W/s) and between-subjects (B/s) designs and the difficulty of correctly analyzing the results. However, Erlebacher (1977) introduced a complex modified ANOVA which combines segments of both experimental designs into a single factorial design to test for a potential interaction without loss of power. Therefore, it was the purpose of this study to determine if such an interaction existed between the IV of exercise intensity and the type of experimental design and what effect it had on RPE. 24 apparently healthy women (65 ± 3.8 yrs) exercised to volitional maximum (mean VO2 max = 23.5 ± 3.1 ml/kg/min) using a progressive treadmill protocol. Relative exercise intensities of 30, 50, and 70% of VO2 max were performed for three 5 minute work bouts over 3 test days by each subject. *Ss* were randomly assigned to either a W/s (6 *Ss*) or B/s (18 *Ss*) design and analyzed by a 3 x 2 (Exercise Intensity by Design) Erlebacher ANOVA. Based on the results, it was concluded that 1) the differences in RPE for the same relative exercise intensity were influenced by the presence of a significant interaction ($p < .05$) between the IV of exercise intensity and the type of experimental design, and 2) that the B/s design continue to be used in conjunction with a W/s design as comparison groups. It is recommended that further studies address potential range and asymmetrical transfer effects which may be responsible for the significant interaction as they apply to exercise perception before deciding which design is more experimentally appropriate.

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DRINKERS'S INTEREST IN MINIMAL CONTACT APPROACHES TO REDUCE ALCOHOL USE.

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This study examined whether adult drinkers would be willing to receive self-help and other minimal contact aids designed to help them drink more moderately. A systematic random sample was selected of all adults 18 years of age and older residing in two adjacent communities in Northwest, Arkansas. A total of 316 adults participated in a mail survey. A randomly selected sample of nonrespondents were interviewed by telephone. Nonrespondents and the mail survey respondents were similar on age, sex, and proportion of subjects reported to drink alcohol, but nonrespondents reported greater alcohol consumption. The most frequently requested minimal contact alcohol aids by drinkers were newspaper articles on how to drink more moderately (20.7%), followed by television and radio programs (15.5%). Over one-fourth (26.2%) of adult alcohol users reported an interest in receiving one or more aids to limit their drinking. Heavier drinkers were more likely than lighter drinkers to be interested in television and radio programs, contests and cash awards, and newspaper articles aimed at helping them to drink less (p's$\leq$.05). Gender was not associated with the interest in receiving any of the alcohol aids. Drinkers who were interested in receiving one or more self-help alcohol aids reported higher levels of alcohol consumption, and greater motivation to limit their alcohol use (p's$\leq$.01). Interested subjects also reported less agreement with the health belief that serious health problems can result from drinking and greater agreement with the belief that drinking in moderation would prevent alcohol problems. These data suggest that a considerable number of alcohol users would like to receive inexpensive aids to help them to drink more moderately. Field studies are needed to determine the degree to which self-help and minimal contact materials and programs may contribute to initiating, modifying, and maintaining alcohol behavior changes.

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THE EFFECTS OF FITNESS TEST TYPE, TEACHER, AND GENDER ON EXERCISE INTRINSIC MOTIVATION AND PHYSICAL SELF-WORTH.

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This study contrasted the use of a fitness test battery designed to identify winners of a percentile-based performance award (President's Challenge) with a battery designed to yield information on health criterion-related fitness status and future health implications (Fitnessgram). Three teachers (who had been briefed on the rationale and protocols of the test batteries) administered the tests to 370 seventh and eighth graders. Using a 2 X 2 X 3 (Fitness Test X Gender X Teacher) design, MANOVA was used to determine effects on exercise intrinsic motivation (Intrinsic Motivation Inventory [IMI] scales), and ANOVA was used to determine effects on physical self-worth (PSW scale). Following the tenets of Effectance Motivation and Cognitive Evaluation theories, experimental effects for fitness test type were hypothesized. MANOVA revealed a main effect for gender (F [4,356] = 8.26, $p < .001$). Univariate analyses revealed that the gender effect was due to differences in perceived competence $p < .001$) although there was also a trend for interest-enjoyment ($p = .07$). There was a significant three-way interaction effect on interest-enjoyment ($p < .05$). ANOVA revealed a main effect for gender on PSW (F [1,344] = 21.84, $p < .001$). Finally, a 2 X 2 X 2 (Fitness Level x Gender X Fitness Test Type) was used to investigate the effect of fitness level on intrinsic motivation and PSW. MANOVA revealed a main effect for fitness level ($p < .001$), and subsequent univariate tests were significant for all four of the IMI subscales ($p < .01-.001$). Similarly, ANOVA revealed a main effect for fitness level on PSW ($p < .001$). The results of this study did not support the theory-based premise that the two tests would produce different motivational and self-perception outcomes. However, since it was not possible to study the activity prescription and recognition aspect of the Fitnessgram scheme (due to time constraints in the cooperating school), this delimitation may have prevented an experimental effect. The three-way (teacher X gender X fitness test type) interaction suggested that pre-existing teacher variables may have affected the outcome. From a measurement perspective, the high- and low-fitness level group score differences supported the case for construct validity of the IMI and PSW scales. Further study on the effects of exercise process-based awards and teacher variables is recommended, and also on the causes of gender differences on these motivational and self-perception variables.

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SPORT PSYCHOLOGY IN THE TRAINING ROOM: A SURVEY OF ATHLETIC TRAINERS.

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Although athletic injury is a commonplace occurrence in the sports world, little is known about the application of psychological principles and strategies to the injury recovery situation. Several authors (Rotella & Heyman, 1986; Wiese & Weiss, 1987; Yukelson, 1986) have proposed that a number of different strategies have the potential to enhance the sport injury rehabilitation process. The purpose of the present study was to survey those working most closely with injured athletes, athletic trainers, regarding the use of psychological strategies in injury recovery. In Study 1, athletic trainers ($n = 26$) responded to both five point Likert scale and open-ended response format questions concerning the efficacy of various psychological strategies, and the characteristics of athletes coping most and least successfully with injury. In Study 2, athletic trainers ($n = 115$) responded to five point Likert rating scales on the same issues. Content analysis procedures were employed on open-ended responses to explore common themes, while descriptive statistics were calculated for all Likert scale responses. The results revealed that in Study 1, 9 out of 12 psychological skills and strategies were rated as important (4) to very important (5), while in Study 2, 7 out of the same 12 were rated as such. More specifically, the four most important strategies for dealing with injured athletes, as rated by the trainers in both studies, were: using a positive and sincere communication style ($M = 4.92, 4.57$ for Study 1 and Study 2 respectively), setting realistic goals ($M = 4.69, 4.53$), encouraging positive self-thoughts ($M = 4.42, 4.34$), and understanding individual motivation ($M = 4.38, 4.27$). Characteristics thought to best distinguish between athletes coping most and least successfully with injury included willingness to listen to the athletic trainer ($M = 4.57$ in Study 2), maintenance of a positive attitude ($M = 4.51$), and intrinsic motivation ($M = 4.40$). In summary, the results of this investigation revealed that athletic trainers believe strongly in the importance of psychological skills and strategies in the injury rehabilitation process. Communication and motivation strategies appear central to the enhancement of recovery. Further investigations should focus on the effectiveness of individual psychological strategies, as well as on training sportsmedicine personnel in basic communication skills and motivational techniques.

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THE EFFECT OF WATER EXERCISE ON VARIOUS PARAMETERS OF PHYSICAL FITNESS.

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It is assumed that water exercise will improve one's level of physical fitness, however, little research has been conducted on its' effects. The purpose of this study was to quantify the effects of a 12-week water exercise program on several commonly used measures of fitness and to assess the relative intensity of a water exercise bout. The subjects were 17 females ($\bar{X}$age=36.1 yrs) who were enrolled in a self-paced noon-time water exercise program. A graded maximal treadmill test, 5-site skinfold measurement, 6-site circumference measurement and a blood lipid profile were completed pre and post training. Each 40 minute exercise session was completed in waist-to-chest deep water (29°C) and consisted of a warm up, aerobic and cool-down periods. Subjects were encouraged to attend 3 sessions per week. During week 1 or 2 (FIRST) as well as during week 11 or 12 (LAST), the heart rate (HR) response was continuously recorded and oxygen consumption (VO2) was measured in the water for 2 minutes during the aerobic portion of the exercise routine. Prior to data analysis, the participants were divided into two groups: HIGH attendance ($\bar{X}\geq 2$ times per week) and LOW attendance ($\bar{X}<2$ times per week). No change was found for either group in VO2max, Total Cholesterol, HDL, resting HR, and resting systolic blood pressure. Resting diastolic blood pressure increased significantly in the LOW group ($\bar{X}$pre=74.0 : $\bar{X}$post=82.7) but did not change in the HIGH group. A significant decrease in the thigh skinfold was found in the HIGH group ($\bar{X}$pre=44.3 : $\bar{X}$post=41.4) while a significant increase was found in the thigh and calf circumferences in the LOW group ($\bar{X}$pre=56.5 : $\bar{X}$post=58.9 and $\bar{X}$pre=37.1 : $\bar{X}$post=37.5, respectively). No change in weight nor sum of skinfolds were found for either group. During the actual exercise bout, subjects were working at an average of 79% of VO2max (HR=156 b/min) during the FIRST week and at 67% of VO2max (HR=142 b/min) during the LAST week. We conclude that the physiological changes resulting from participation in a 12-week self-paced water exercise program are negligible. However, the intensity of the measured aerobic portion demonstrates that water exercise can provide a sufficent workload to elicit cardiorespiratory improvements. Therefore, frequency of participation as well as the intensity and duration of the aerobic portion of the water exercise session should be prescribed and monitored if improved cardiorespiratory fitness is the desired goal.

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EXERCISE ADHERENCE OF HEMODIALYSIS PATIENTS

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Hemodialysis patients traditionally have a high non-adherence level to their medical regimens. To date, their adherence to exercise programs has not been studied. Background information about employment, medical history, previous exercise habits and locus of control was obtained from 40 volunteers who participated in an at-home exercise program. Twenty-eight participants established and maintained an exercise program, consisting of aerobic activity lasting at least 15 min., two or more times per week. This activity level represents the minimal amount of activity tolerated by the patients. The adherent patients were found to: 1) have encouraging support groups (75% vs. 23%), 2) be between 41-60 years of age (64% vs 33%), 3) have less depression as scored by the Beck Depression Inventory (70% vs. 30%) and 4) have loci of control classed as "internal" (68% vs 25%). Factors such as race, employment status and sex were found to have little influence on adherence. The major findings of this study are: 1) the exercise participants could be distinguished by unique psychological and psychosocial factors and 2) the twelve week exercise adherence level in this population exceeds that estimated for the general population (70% vs. 50%).

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THE USE OF KINEMATIC INFORMATION FOR IMPROVING A COMPLEX MOTOR SKILL.

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A fairly good representation of the effects of knowledge of results (KR) on motor skill acquisition and learning has previously been undertaken. Little is known, however, about the role of knowledge of performance (KP) on the acquisition and learning of a complex motor skill. The purpose of this study was determine if the method of presentation for kinematic information is critical. Forty-eight individuals who had previously played golf right-handed were selected as subjects. All subjects hit 100 golf shots with a 5 iron. A Sportech golf computer was used to measure and to present the KP associated with the swing. The testing session occurred across two days, so that 50 swings were performed on each day. Following each set of five trials, an average of the club's path characteristics and the face angle at impact was presented to the subjects for a 15 s period of time. Three modes of presentation and a control condition were randomly assigned to subjects ($\underline{N}$ = 12). Two modes of presentation were visual and one mode was verbal. Of the two visual presentations, one condition set parameters to represent the ideal movement in the form of a template. For the second visual condition, subjects were allowed to view only his/her pattern. For the verbal presentation condition, the KP was presented numerically and represented a subject's movement pattern. The fourth presentation mode served as the control, subjects did not receive any information. Following the acquisition trials, subjects returned one week later to perform 10 trials without KP. The design for the study was a 4 (group) x 10 (trial block) or a 4 (group) x 2 (trial block, i.e., last block of acquisition and the retention block) with repeated measures on the last factor. MANOVA's and separate follow-up ANOVA's for acquisition and retention were calculated for the dependent variables club face angle, back path error, through path error, and path difference. The acquisition results indicated that subjects who were presented KP visually performed with less error during the back swing phase of the movement. Further, less error associated with the club face at impact was demonstrated by the control group. During retention, smaller error in path difference was noted for the subjects who received KP. The smallest path difference error was exhibited by the visual template group.

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Contextual Resolution as a Function of Teacher Role Identity Strength. Terry E. Worthy, Amelia M. Lee, Jo A. Carter, & Melinda A. Solmon, Louisiana State University

Teacher Role Identity (TRI) has proven to be a useful concept in the ongoing study of the interactive nature of teacher socialization. Biographically based, TRI is the composite and personal perception which informs teacher thinking and guides teacher behavior. The strength of TRI is assessed through the clarity of the perception of oneself in the actual role of the teacher. The purpose of this study was to examine the way in which student teachers with differing TRI strengths identify problems and employ problem-solving strategies within the student teaching context. Subjects for this study were five physical education students enrolled in student teaching. Data from verbatim transcriptions of two formal interviews and biographical data questionnaires were content analyzed for evidence of 1) the ability to envision oneself in the teaching role and project a positive and definitive characterization of interaction; 2) confidence in sufficiency of preparation and readiness for teaching; and 3) confidence in personal attributes considered requisite to ideal teachers. Based on these indicators, three subjects were assessed to have strong TRIs and two were found to have weak, poorly defined TRIs. Additional data gathered through 1) written responses to printed scenarios representing hypothetical problems and 2) reflective journals describing actual responses to problems arising over the student teaching semester were content analyzed for type and frequency of problems and proposed resolutions. It was found that all subjects responded in much the same way when asked to suggest possible resolutions to hypothetical problems concerning motivation, curricular change and teacher/coach conflict. However, the three subjects having stronger TRIs did offer a higher number of relevant solutions to the situations. The reflective journals provided a clearer contrast among the subjects' problem-solving abilities. As a group, the subjects with stronger TRIs identified, proposed action, and satisfactorily resolved a comparable number of contextual problems. In contrast, the subjects with weaker TRIs either failed to discern problems over the semester or identified numerous problems but were unable to effect resolutions. Results support the use of reflective journals as a means of encouraging student teacher reflectivity and as a means of assessing problem solving ability.

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RECREATION SOFTBALL LEAGUES AND THE DEVELOPMENT OF COMMUNITY AMONG JAPANESE-AMERICAN WOMEN IN LOS ANGELES, 1930-1950.

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Historical studies of women's softball have been uncommon. Fiedler concluded that the Depression was a catalyst for the game's growth, due primarily to augmented leisure that unemployment had created and by the increase in the number of parks and playgrounds constructed under the auspices of the WPA. Stanaland's study of women's recreational softball leagues in Kentucky, 1940-1970, found that women were no longer content to remain spectators at men's games. Little attention has been given to the function of softball among ethnic groups. This study examined women's softball within the Japanese-American community of Greater Los Angeles during the 1930's and 1940's. John Modell (The Economics and Politics of Racial Accommodation of the Japanese in Los Angeles, 1900-1942, 1977) concluded that within the Japanese-American community social and recreational organizations developed that performed important functions. These centered around a desire on the part of Issei to involve the Nisei in their traditional culture while enabling the Nisei to pursue values and events which most interested the younger generation. This study found that women's softball performed similar functions. Teams were sponsored by religious and other organizations and games were often viewed by several hundred spectators. These teams typically were part of clubs which provided their members with many social activities of which softball was one. Rafu Shimpo, the major daily newspaper of the Japanese-American community in Los Angeles, gave the women's softball leagues prominent and frequent coverage. These flourishing leagues came to an abrupt halt in 1942 as the Japanese-Americans were relocated as a consequence of fears of invasion and espionage. During the post war period, women's softball reemerged, but with much less intensity. Several reasons may be cited. The Nisei scattered through the suburbs rather than living in close association in the city. There was an overall drop in the Japanese-American population of Los Angeles. There was a desire not to be identified as belonging to a Japanese organization. The Rafu Shimpo provided the most important sources for this study. Some use was made of transcripts of oral interviews with Japanese-American women, personal correspondence from individuals in relocation centers and similar ephemeral material.

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THE RELATIONSHIP OF RELIGIOUS LITERALISM AND OTHER RELIGIOSITY FACTORS TO SEX GUILT AND SEXUAL BEHAVIOR.

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The purpose of the study was to determine (1) the relationship of religious literalism and other religiosity factors to the expression of sexual guilt and (2) the influence of religious and sex guilt factors on participation in sexual intercourse. We live in a time when religious fundamentalists are highly visable, yet when the fall of television evangelists have somewhat tarnished the view of organized religion and when for many people religion has seemingly nothing to offer. Thus, it is important to determine the current impact that religion might have on an area such as sexuality, in which it has traditionally been viewed as a major inhibiting factor. Subjects for the study were college students enrolled in a required freshman level course at two different state universities. The students voluntarily completed in a classroom setting, a questionnaire which included Mosher's Sex Guilt Inventory, Faulkner & DeJong's Religiosity in 5-D, and Hunt's Religous Literalism Scale. Response rate was approximately 98 percent. Only responses from single, never married students were included in the data analysis. This yielded data from 294 students. To analyze sexual behavior students were classified as (1) virgins, (2) non-virgins who had not participated in sexual intercourse in the last month, or (3) non-virgins who had participated in sexual intercourse in the last month. Data were analyzed using SAS programs Proc Stepwise, Proc GLM & Proc Discrim. Results indicated that for males religious literalism and related factors accounted for a substantial amount of the variation in the seven sex guilt subscales as well as total sex guilt (i.e. $R^2=.347$ for total sex guilt). These factors had much less influence for females ($R^2=.180$ for total sex guilt). Results relative to sexual behavior indicated significant differences by behavior status for all seven sex guilt subscales, total sex guilt and three of six measures of religiosity. In each case virgins expressed greater guilt and greater religiosity. When discrimate analysis was utilized to reclassify subjects on the basis of sex guilt and religiosity factors, males could be correctly reclassified 66% of the time and females 53%. These results highlight the important influence that religion continues to play in the lives of a substantial number of students and should be considered by those working with student groups in the area of sexuality.

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PREDICTING POSTPARTUM FATNESS FROM EARLY PREGNANCY SKINFOLD MEASUREMENTS. Zeanah, M.S., University of Montevallo; Bishop, P.A., University of Alabama.

Changes in body weight during pregnancy may be consequent to fetoplacental growth, hormonally mediated tissue changes, expansion of blood volume, maternal fat weight, or accumulation of water. Previous research indicates that body weight changes correlate highly with infant and mother health status, though currently there are no procedures used to analyze the nature of weight gain during pregnancy to determine whether the change in weight reflects normal desirable fetoplacental development or a fat or water increase. The purpose of this study was to investigate the efficiency of monitoring maternal fat weight changes throughout pregnancy and to determine the best predictor of body fatness after parturition. Skinfold measurements were taken on eight women (ages 21 to 33) during routine obstetrical visits. Early skinfold measurements (ESK) were made at 8-18 weeks of pregnancy, late skinfolds (LSK) were measured at 38-41 weeks, and post-partum skinfolds (PSK) were taken 5-10 weeks after delivery. Result indicates that the gain in weight was relatively independent of late weight (r=.39), postpartum weight (r=.19) or early or late skinfolds (r=.38 and .13 respectivly). Postpartum skinfolds were related to early skinfolds (r=.92). The mean sum of ESK was 66.6mm, 64.5mm for LSK, and 56.0mm PSK. A stepwise regression analysis (BMDP) identified ESK as the best predictor of postpartum fatness (R^2 = .83, SEE = 5.07). This procedure could be used to more accurately partition weight alterations during pregnancy and facilitate better nutritional counseling. Postpartum sum of skinfolds = 13.7950 + (ESK) 0.63217.

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AGE AND GENDER FACTORS IN SETTING HEALTH FITNESS STANDARDS FOR PHYSICAL BEST: AGE 10 - 18.

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The health fitness standards (HFS) for Physical Best, a current national fitness test, were determined largely by inference. The HFS represent desirable fitness levels that may maintain children at low risk from disease, illness, and disability as adults. The pattern of several standards across age group and gender, however, may not be justifiable. The standards set by age and gender should represent actual performance on the test items as reflected by the raw scores. The purpose of this study was to examine age and gender factors in interpreting the HFS by comparing the data from the National Children and Youth Fitness Study (NCYFS I). The total number of subjects, ages 10 to 18, was 8723, with 4486 boys and 4237 girls. As verified in previous studies, significant slopes ($p<.01$) were found for the raw scores by age, both boys and girls, for all six items: One Mile Walk/Run, Sum of Skinfolds, Body Mass Index, Sit & Reach, Sit-ups, and Pull-ups (except Pull-ups for girls). These slopes were compared with the slopes for the HFS. For boys, significant differences ($p<.01$) between the slopes of the raw scores and the slopes of the HFS were found in Sum of Skinfolds, Sit & Reach, and Pull-ups; the slopes of Sum of Skinfolds and Sit & Reach were zero in the HFS. For girls, significant slope differences ($p<.01$) were found in Sum of Skinfolds and Sit & Reach; the slopes of Sum of Skinfolds, Sit & Reach and Pull-ups were zero in the HFS. The slopes for the Sit-ups standards (1.300 for boys; 0.533 for girls) and One Mile Walk/Run standards (-0.287 for boys; -0.105 for girls) were not significantly different from the slopes for the raw scores (Sit-ups: 1.300 for boys and 0.512 for girls; One Mile Walk/Run: -0.281 for boys and -0.079 for girls). The slopes of the raw scores for all items, except the Sit & Reach, in our analyses were significantly different between boys and girls, while only Pull-ups, Sit-ups and One Mile Walk/Run showed this difference using HFS. A significant difference was also found between boys and girls when comparing the raw scores on the Sit & Reach, while the same standards (25) were set for both boys and girls. In conclusion, only the standards for Sit-ups and One Mile Walk/Run reflected actual performance differences across age and gender on the Physical Best items. Although the HFS are expected to represent desirable levels of physical fitness, the justification for some of these standards might be reexamined in light of these peformance differences.

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Importance-Performance Analysis: An Evaluation Strategy for a Summer Recreation Program. Dean A. Zoerink, Kent State University.

In efforts to respond to public need and generate revenue, many public and commercial leisure service program managers are adopting marketing approaches to advance their programs. A control feature of the marketing approach is that consumer input is essential if managers want to upgrade, develop, or improve their services to meet public expectations. Consumer satisfaction and program accountability have led many administrators to adopt program evaluation strategies that directly explore the degree to which consumers expectations have been met. One approach for obtaining this information is the use of an Importance-Performance (I-P) Scale which measures satisfaction by determining what features are important to the participant, and rating the agency's performance on each feature. The purpose of this investigation was to evaluate the degree to which parents were satisfied with the activities included within a summer recreation program for youths. After having initial drafts reviewed, the final I-P Scale, consisting of 22 features for each importance and performance measure, was developed. It included such attributes as registration procedures, supervision, and class instruction. To obtain respondent reactions a seven-point Likert scale, ranging from 1 = Not Important to 7 = Very Important, was used. In addition two open-ended questions asking parents what they liked best and least about the program were included. Of the 154 I-P scales distributed to parents of children enrolled in the summer youth program, 54 (35%) were returned. Generally, Mothers, who were between the ages of 36 and 40 and had one child enrolled in the program returned completed scales. Mean scores of each attribute were plotted on a two-dimensional, four-quadrant grid. The respective location of each set of importance-performance means indicated the degree of respondent satisfaction. The locations ranged from a "keep up the good work" quadrant, indicative of being highly satisfied to a "low priority" quadrant, indicative of being dissatisfied. Those features receiving high importance ratings and high performance scores could serve as the focus of the program's promotional materials. Such a program evaluation technique can be used to assist in the revision or "marketing" of a variety of public and commercial leisure service programs.

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ISBN 0-88314-479-4